

DOCUMENT RESUME

ED 297 092

CE 050 569

AUTHOR Klevans, Deborah R.
TITLE Developing a Needs Assessment Plan in Continuing Professional Education.
INSTITUTION Pennsylvania State Univ., University Park. Office of Continuing Professional Education.
PUB DATE Apr 87
NOTE 86p.
AVAILABLE FROM Commonwealth Educational System Stores, 9 J. Orvis Keller Bldg., Pennsylvania State University, University Park, PA 16802 (\$7.00 including postage and handling).
PUB TYPE Guides - Non-Classroom Use (055)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Data Collection; *Educational Planning; Guidelines; Higher Education; Literature Reviews; *Needs Assessment; *Professional Continuing Education; *Program Development; *Self Evaluation (Groups)

ABSTRACT

This document provides an overview of the needs assessment literature related to continuing professional education and guidelines for designing needs assessment procedures for a given project or professional group. Section 1 reviews the literature. It considers key concepts and definitions, reviews factors that may influence the development of a particular needs assessment process, and discusses arguments for focusing on performance outcomes. Section 2 reviews general methodological and procedural issues that should be weighed in designing a needs assessment. Among them are levels of assessment appropriate for long- and short-range planning, factors to consider in choosing specific needs assessment instruments, and procedures useful in determining priorities among needs. Section 3 highlights key points and recommends directions they suggest for designing needs assessment procedures and directions for future research and development. The appendix is designed as a reference guide for needs assessment planning. An outline of steps to develop an orderly needs assessment plan is presented, and specific needs assessment procedures are summarized in several ways. First, procedures are grouped by the sources from which they obtain information. Next, various other ways by which to characterize needs assessment procedures are listed. The section concludes with brief outlines of assessment procedures that may be useful in planning continuing professional education and a bibliography of 46 references. (YLB)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

PENNSTATE



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

✦ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

DEVELOPING A NEEDS ASSESSMENT PLAN

IN

CONTINUING PROFESSIONAL EDUCATION

OFFICE OF CONTINUING PROFESSIONAL EDUCATION

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

D. Queeney

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

PLANNING STUDIES
COMMONWEALTH EDUCATIONAL SYSTEM

ED297092

CE050569

OFFICE OF CONTINUING PROFESSIONAL EDUCATION

Penn State's Office of Continuing Professional Education is a research and development unit dedicated to advancing continuing education opportunities for the professions and promoting higher education's role in the process. Based on the premise that continuing professional education should improve practitioner performance, the Office focuses on enhancement of professional practice as a primary objective. In cooperation with professional associations as well as practitioners and their employers, the Office serves professional learning requirements through assessing educational needs, designing programs, and evaluating learning outcomes. The Office seeks to perpetuate the progressive educational spirit inherited from its antecedent, the Continuing Professional Education Development Project, a research effort conducted from 1980 to 1985 and funded by the W. K. Kellogg Foundation and Penn State.

Purpose

The fivefold mission of the Office of Continuing Professional Education includes:

- Advocacy: to serve as an advocate for continuing professional education within the University context through the development of innovative approaches to continuing learning for professionals.
- Linkage: to build linkages between the University's academic departments and its continuing education program development and delivery units in order to foster a coordinated, comprehensive response to the increasingly important issue of continuing education for professionals.
- Collaboration: to serve as a catalyst for the establishment and maintenance of collaborative relationships between the University and professional associations so that the expertise of educators and practitioners can be combined to produce more effective learning experiences for professionals.
- Consultation: to examine, explore, and share alternative strategies for identifying professionals' learning needs and for evaluating continuing professional education programs in order to assist academic departments and faculty members in better addressing the educational challenges posed by professionals' continual need to update their skills and knowledge.
- Research: to conduct action research on issues related to continuing professional education in order to better understand and provide solutions to the complex problems underlying the ongoing education of practicing professionals.

Additional information is available from the Office of Continuing Professional Education, Division of Planning Studies, Commonwealth Educational System, 402 Grange Building, University Park, PA 16802; Phone (814) 865-7679.

DEVELOPING A NEEDS ASSESSMENT PLAN
IN
CONTINUING PROFESSIONAL EDUCATION

Deborah R. Klevans

April, 1987

Office of Continuing Professional Education
Division of Planning Studies
Fourth Floor Grange Building
The Pennsylvania State University
University Park, Pennsylvania 16802-6793

TABLE OF CONTENTS

	Page
LIST OF FIGURES.....	11
INTRODUCTION.....	1
LITERATURE REVIEW.....	2
METHODS AND PROCEDURES.....	16
RECOMMENDED DIRECTIONS FOR NEEDS ASSESSMENT IN CONTINUING PROFESSIONAL EDUCATION.....	27
APPENDIX: A REFERENCE GUIDE FOR NEEDS ASSESSMENT.....	40
Implementing a Needs Assessment Plan.....	41
Needs Assessment Procedures Categorized by Sources.....	48
Ways of Characterizing Specific Needs Assessment Procedures.....	51
Procedures for Gathering Data.....	54
Algorithms.....	55
Behavior Event Analysis.....	57
Competency Model for Self-Diagnosis of Learning Needs.....	58
Critical Incident Techniques.....	59
Delphi Technique.....	60
Fault Tree Analysis.....	61
Focus Delphi Procedure.....	62
Focus Group Interviews.....	63
Performance Audit.....	64
Projective Self-Assessment Techniques.....	65
Quality Assurance Review (Inspection of Practitioners' Records and Reports).....	66
Survey: Multiple-Matrix Sampling Techniques.....	67
Procedures for Ordering Priorities.....	68
Budget Allocation Procedure.....	69
Card Sort Goal Rating Procedure.....	70
Decision Model (Combined analysis in qualitative statements.).....	71
Demand Assessment Approach.....	72
Magnitude Estimation Scaling.....	73
Priority Matrix or Pair-Weighting Procedures.....	74
Ranking or Rating Procedures.....	75
BIBLIOGRAPHY.....	76

LIST OF FIGURES

FIGURE		Page
1.	Quadrant Method for Determining Critical Need Areas.....	24
2.	Algorithm for Developing Algorithms.....	56

DEVELOPING A NEEDS ASSESSMENT PLAN
IN
CONTINUING PROFESSIONAL EDUCATION

"It is far better to invest some effort in measuring the consequential than it is to effortlessly measure the trivial." (Klemp, 1979)

INTRODUCTION

The purpose of this paper is twofold. First, it is intended to provide an overview of the needs assessment literature as it relates to continuing education for professionals. Second, it is intended to provide guidelines which will be useful in designing needs assessment procedures for a given project or professional group.

The paper consists of three sections and an appendix. The first section is a review of the general needs assessment literature. It includes a consideration of key concepts and definitions. It also includes a review of factors that may influence the development of a particular needs assessment process. It concludes with a discussion of the arguments for focusing on performance outcomes.

The second section provides a review of some of the general methodological and procedural issues that should be weighed in designing a needs assessment. Among them are the levels of assessment appropriate for long and short range planning, factors to consider in choosing specific needs assessment instruments, and procedures useful in determining priorities among needs.

Section three is a consideration of key points from the preceding literature review along with recommendations about directions they suggest for

designing needs assessment procedures for various projects involving continuing education for professionals. It also includes suggested directions for future research and development.

The appendix is designed to serve as a reference guide for needs assessment planning. An outline of steps to be taken in developing an orderly needs assessment plan is presented and specific needs assessment procedures are summarized in several ways. First, procedures are grouped by the sources from which they obtain information. Next, there is a listing of various other ways by which to characterize needs assessment procedures. The section concludes with brief outlines of a number of assessment procedures which may be particularly useful in planning continuing professional education. It is anticipated that the number of these summaries will be expanded as time permits and needs dictate.

LITERATURE REVIEW

Concepts and Definitions

An examination of the needs assessment literature makes it apparent that an understanding and clarification of the terms and concepts used are a prerequisite to comprehending the topic. As Brackhaus (1982) noted, the more one reads, the more one is apt to become confused. In part this is because consensus is lacking about the meaning of the concepts in the needs assessment literature.

Need. Need is generally defined as either a lack of something requisite, desirable, or useful (McCaslin and Lave, 1976) or as a gap in knowledge, skills, attitudes, competence or performance (Pennington, 1980; Smutz, Kalman, Lindsay, Pietrusko and Seaman, 1981). This gap is either between the actual and the satisfactory, implying a deficit, or it is between the actual and

desired or ideal, implying the wish for enrichment. There are various ways in which needs have been categorized or subdivided. For example, needs have been subdivided in terms of the overtness of their expression. Thus, distinctions have been made between felt needs in which an individual is conscious of a gap and expressed needs in which an individual is both aware of a gap and expresses this awareness. Needs also have been categorized by the objectivity with which they have been determined. Real needs, genuine needs, or assessed needs have been defined as objectively determined deficiencies in contrast with self-determined needs. Needs have been categorized by comparison with a particular standard, as well. For example, normative needs describe a deficiency between certain standards and an actual condition, while comparative needs describe a gap between a particular group and an individual or between one group and another.

Finally, needs have been classified by their sources. Thus Long (1983) has categorized them as either innate, internal and physiologically based, that is, associated with drives; or external, learned, and psychologically based, that is, associated with motives. Maslow's hierarchy of needs spans both of these categories. Long reports that some writers distinguish between psychological needs and another category which is often labeled educational needs. This latter category also is considered to be externally determined. The gap involved separates what individuals know and can do from what they "ought" to know or do as decided by that individual, by particular organizations, or by society. Educational needs often emanate from a prescriptive source. Knowles, (1980) for one, suggests that educational need is questionable as a category because it intermixes needs with wants.

Wants and demands. The distinction between needs and wants is a relevant one in the needs assessment literature. A want concerns the motivation, or strength of feeling or intention, to eliminate a gap or lack. It implies an awareness of this gap on the part of the individual involved. A third construct, demand, is most precisely described as representing a situation in which a concrete decision has been made and an action taken toward meeting a need. It implies an agreement to bear the expense involved, whether in effort, time and/or money.

Needs assessment. Needs assessment refers to a system or a process for identifying and dealing with needs. A widely used definition is that needs assessment is a process which determines who (individual or group) needs what (needs component) as defined by whom (McCaslin and Lave, 1976; Rookey, 1975). The above definition does not differentiate among types of needs or sources of data which might be involved. More formally, needs assessment has been described as a process to identify, document and justify gaps in results and select the most important for attention (Kaufman, 1986). Similarly, Kaufman and English (1979) describe needs assessment as a process that determines gaps between current outputs or outcomes and required or desired outputs or outcomes, places these gaps in priority order, and selects the most important ones for resolution. An analysis of these last two definitions reveals an emphasis on outputs or results as key data sources in needs assessment.

Knowledge, competence and performance. The needs assessment literature often does not indicate whether the assessed needs refer to knowledge, competence or performance. Such distinctions are vital in clarifying not only the purpose of a needs assessment procedure, but also the intervention strategies that would follow. Shimberg (1983) is one author who does distinguish among these domains. He points out that knowledge most commonly refers to the

acquisition or apprehension of factual information. Performance is the execution of action or accomplishment. Competence is an in-between state referring to the capability of carrying out an act when the time comes. Shimberg goes on to describe competence as being characterized by sufficient aptitude or requisite abilities. To be competent is to possess the knowledge, judgment, strength, or skill needed to perform an indicated action. The carrying out of the action is performance.

It has been noted that attitude, motivation, and opportunity are factors that may separate competence from performance, capability from accomplishment. However, there is some confusion in the literature about the meaning of the term competence. For example, Gilbert (1978, p. 18) presents a formal definition in which he describes human competence as "a function of [dependent on] worthy performance (W), which is a function of [dependent on] the ratio of valuable accomplishments (A) to costly behavior (B)". It is concisely expressed in the formula $W = A/B$. This is a definition in which competence is judged by outcome and would seem to be intertwined with performance, unlike the more commonly used definition of competence described by Shimberg.

Needs analysis. While several definitions of needs assessment include the process of putting needs into priority order and dealing with them, others such as Kaufman's (1986) differentiate needs assessment from needs analysis. The latter term would include the process of breaking down the identified needs into their component parts, finding out the cause of these needs, and using that information to supply some functional data useful for selecting interventions to meet the need.

The definitional confusions which have been discussed are more than mere semantic quibbles. As Olson and Freeman (1979) point out, how one defines a domain such as competence will greatly affect one's choice of measurement

procedures. If behaviors are part of what is meant by competence, for example, then one should evoke behaviors in measuring it. Too often, measures such as proficiency examinations, which are intended to demonstrate job related skills, measure only the knowledge component of those skills. Long (1983) in his review of the needs assessment literature supports Monette's (1979) contention that the concept of need is indeed a "fuzzy" one. He says:

My own impression of the literature suggests that one explanation for the extreme divergence in absence of agreement among those who have attempted unsuccessfully to overcome problems with the concept lies in faulty analysis and disregard for popular semantics. For example, Shesha and Houle seem to focus on the essence of need; the construct is defined as a feeling of tension or pleasure. Scissons defines the construct by function. Knowles conceptually describes need, and others such as Bergevin and Monette use description as the basis of definition. Robbins mixes functional and descriptive attributes. (p. 196)

Scisson's typology. Until this confusion is resolved, those concerned with needs assessment are required to consider carefully which operational definitions they are using. One of Long's suggestions, made in the context of describing directions for future research, is to focus on the functional characteristics of needs based on a specific typology such as that provided by Scisson in his psychometric needs assessment procedure.

Scisson provides a multi-dimensional definition of educational needs which has three components: competence, relevance, and motivation. In his typology, competence refers to the ability to perform a range of skills. Relevance refers to the usefulness of these skills to individuals. Motivation refers to the predisposition of an individual to improve competence. Scisson

adds two higher order definitions based on the above three components. The first, which Scisson calls wants, he describes as a combination of motivation plus either competence or relevance. Using Scisson's definition, individuals can be incompetent but not motivated because they see no relevance for increasing their competence. On the other hand, individuals may desire to improve their ability to perform certain skills even if they do not believe the increase in competence will serve any particular usefulness. Finally, Scisson describes two sets of complex needs. The first he calls discrepancy needs. These are needs which combine high relevance or usefulness and high levels of needed competence or skill development with low levels of motivation. The second Scisson calls derived needs. This construct includes high levels of relevance or usefulness with high needs for skill development and strong motivation. In this instance one would be strongly disposed to increase one's skill level because it is useful.

According to Scisson's model, it is a person's wants which are instructive. That is, people tend to be predisposed to improve their competence because it is useful to them.

Goal Setting Factors

External reality. The work of Scisson and his colleague Misanchuk are described by Long (1983) as being in the formative stages and not readily available in written form at this time. However, it would seem to offer a useful set of guidelines for clarifying an aspect of the needs assessment process which is highlighted by Kaufman and English (1979), using the information obtained in the initial stages of the needs assessment process as a basis for realistic goal setting and needs identification. In considering needs assessment in the context of an educational system, Kaufman and English emphasize that a consideration of the combined felt needs of learners,

educators and employers are only an entry point. They believe these felt needs must be considered in terms of external reality as well. That is, the existence of needs and the effort required to reduce or eliminate them must be substantiated and justified in terms of existing external social realities and values. One of these factors is cost.

Fidler and Loughran (1980) expand upon the need to consider the cost involved in determining if and how needs should be addressed. In their description of a systems approach they recommend the generation of alternative solutions to meeting recognized needs, only some of which may involve education or training.

Conflicting judgments. Using a model such as the one described by Kaufman and English (1979) raises questions about how to decide whose perception of needs should carry the greatest weight when a conflict arises among various input sources in a needs assessment process. Lindsay and Crowe (1984) are critical of the failure in much of the needs assessment literature to recognize that the standards for determining needs are relative and to acknowledge that judgment plays an important role. This raises the question of whose judgment should prevail. That dilemma is reiterated by Sheridan and Shannon (1979) who describe an instance in which employees did not perceive of themselves as being ineffective in certain communication skills although their customers did. These authors ask:

1. Whose perceptions should have the greater weight: the learners', the consumers' whom they serve, or the experts'?
Also, what weight should be given to the perceptions of agency administrators and professional organizations?
2. In developing a training design, should educators try to convince adult learners to include subject areas that they do not think they need?

3. If developing the training design is perceived of as a negotiation process between the educator and the learner, what are the most effective ways of negotiating this issue?
(p. 228)

Normative standards and values. As Monette (1979, p. 84) has concluded, "the concept of need has no meaning without a set of norms.... Needs are not merely empirically determined facts; they are complex value judgments." He goes on to describe evaluation as being governed by the canon of efficiency, which addresses "how something was done". Needs assessment, in contrast, is governed by the normative canon and asks "What should be done?" This implies a predetermined standard against which to measure needs.

Pennington (1980) addresses the issue of values somewhat differently. He comments that much of the needs assessment literature implies that the process is politically neutral and assumes it is concerned with the values of the potential learner when, in fact, institutional goals often influence the type of needs assessment that is done.

With the recognition that needs assessment is not as objective as it may appear to be, several authors have suggested approaches for modifying what Monette (1979, p. 85) calls "the existing tyranny in adult education of an exclusively technical mode of valuing educational activity". Monette argues that needs per se cannot define educational objectives. In fact, he rejects the behavioral objectives model outright because he feels that it does not come to grips with the problem of values and that it violates the notion of personhood and learning. Instead, he proposes a model which suggests that the starting point of educational planning should be an effort on the part of both educators and the community to be served to establish a direction for inquiry through an explication of the values to which they are all mutually committed.

Based on these identified values, Monette suggests that those involved in planning consider a second set of questions which lead to the development of a consistent psychological model of learning. Finally, he recommends that consideration by those doing the planning be given to specifying the nature of the educational transactions themselves and to predicting what would happen to and for the learner in the model proposed.

It should be noted that Monette's rejection of a behavioral objectives approach is by no means universal. Kaufman (1986) is representative of a more typical approach. He presents an algorithm for determining useful educational objectives in which he asserts that the ends or results to be accomplished are best derived by identifying gaps in results. Yet Kaufman, too, acknowledges the value system implied in the process when he states that objectives may not be enough. He goes on to say that "we should confirm additionally that our goals and objectives are correct and useful.... and.... determine that the gap is worth closing before selecting the ways and means to get there" (pg. 24).

Pennington (1980), who also points out that value judgments are unavoidable in needs assessment, recommends the implementation of the "double loop" approach first proposed by Argyris and Schon (1974). Such an approach includes an ongoing re-examination of the assumptions and values underlying a given needs assessment process as a part of the needs assessment process itself.

A more radical alternative is proposed by Tennant (1986). He rejects the needs-meeting paradigm entirely whether it involves considerations of individual needs or organizational needs because he believes it often serves only as a slogan which meets the marketing interests of professional educators. That is, offerings which are popular are often presumed to be meeting learners' needs and those which are not well-attended are assumed not

to meet learners' needs--no matter what needs assessment procedures may have preceeded their implementation. Instead, Tennant recommends the abandonment of needs language and its replacement with the language of priorities developed within a social policy framework. If such an approach were applied to continuing professional education, priorities for learning would presumably be based on the extent to which expected outcomes would be of benefit to society in general or to a given profession's clients in particular, rather than be based primarily on the self interests of professionals or of continuing professional educators.

Without necessarily abandoning the needs assessment approach, a consideration of these diverse views can serve to sensitize those concerned with continuing professional education to the importance of examining and clarifying the value system under which they operate and to more carefully consider those whose needs they are ultimately serving.

It is helpful to keep in mind the comment made by Pennington (1980) that only individuals who have educational needs learn and apply what they learn. In this sense he says, groups, organizations, and communities do not have educational needs. However, this is not to suggest that only individuals are served by a needs assessment process. In fact, Campbell (1980) suggests that formal needs assessments are more warranted when the beneficiaries of continuing education extend beyond the individual to include groups, organizations or communities.

Focusing on Performance Outcomes

In the context of continuing education for professionals, the focus is perhaps most appropriately placed on determining ways to enable individuals to improve their performance outcomes. Pottinger (1979), in a consideration of certification practices, suggests that this requires a focus on what profess-

ionals do with the capabilities they have. He suggests that competency evaluation, a process closely akin to needs assessment, be rigorously linked to both job performance and those personal requirements for competence that reflect the true richness and complexity of human behavior.

The foregoing views of Pottinger raise a final issue requiring examination before turning to a consideration of methodology in the needs assessment process. Pottinger argues that the focus should be on assessment and evaluation of performance outcomes of individuals. This view is shared by Kaufman and English (1979), among others. In describing their systematic approach, the latter authors agree that the most useful common referent in a needs assessment is to results which are external to the agency sponsoring the assessment. That is, the referent should be the outcome which is the end result of efforts made by individuals. Gilbert (1978) puts this another way when he suggests that there is no need to measure behavior until we measure accomplishment. It is his belief that if performance is observed systematically, with an eye on accomplishment, then those components that contribute readily to exemplary results will be apparent. Smutz et al. (1981) also indicate that assessment procedures should relate closely to the practice setting. Pottinger (1979) expands upon this view by noting that many assessment techniques, even if based on external behavior, are not sufficient unless they take into account underlying causes of external behavior. It is his contention as well as that of Shimberg (1983) that even the most sophisticated examination fails to predict performance adequately if it does not take into account variables that determine the effective use of the behaviors. In other words, because individuals can perform does not necessarily mean they do perform.

The three broad dimensions of performance which, according to Pottinger, have been discovered to be highly related to competence are: cognitive processing abilities, interpersonal skills, and motivation. It is Pottinger's contention that all aspects of these three dimensions of behavior and personality can be identified, defined, and measured. Thus, he suggests, they should be treated as critical domains of any profession when tests of competence are being developed.

Pottinger (1979, p. 30) cautions that "if one considers personal attributes such as empathy, well-developed cognitive processes, moral reasoning abilities, interpersonal effectiveness, or motivation as important aspects of competence, then these attributes must also be reflected in the assessment process." It would follow that effective continuing education should help learners increase their skills and coping abilities in all these areas as well.

In describing the essential requirements of effective assessment techniques, Pottinger lists several measurement factors as needing further development. These factors, which are summarized below, also would seem to hold true for needs assessment procedures.

1. Measuring skills rather than knowledge. This suggestion is based on consistent research findings that the amount of one's knowledge of a content area is generally unrelated to superior performance in an occupation and often unrelated even to minimally acceptable performance.
2. The problem of method variance. Often assessment measures are concerned with only those aspects of behavior readily tapped by paper and pencil tests. Pottinger contends, and many others agree, that we would get a better understanding of true professional ability if we could break away from

simple modes of measurement while nevertheless requiring that the measurement techniques used are objective and quantifiable.

3. The problem of complex skill interactions. It has been noted that people can solve identical problems in different ways. Competence is not a simple summation of discretely defined subunits of knowledge and skills or personal characteristics. To reflect this, a proper evaluation should be multi-dimensional and requires sophisticated techniques for determining optimal patterns.
4. Generic skills versus observable performance skills. There is difficulty in determining which abilities are causally related to successful performance rather than merely correlated with it. Observable behaviors often fail to predict performance adequately because they don't take into account underlying variables such as interpersonal communication or critical thinking skills which determine the effective use of these behaviors in practice.

Houle (1983) in his consideration of possible future directions for continuing professional education concurs with the view that analyses of individuals' performances are needed and that quality performance may indeed be the only true test of the need for and effectiveness of continuing professional education. He notes, however, that ways to assess performance are still very experimental and costly. He considers the possibility that simpler measures such as attendance, learners' opinions, and simulations of actual experience may, in the end, be good enough.

Moreover, the assumption that paper-and-pencil tests do not tap complex performance related skills has been challenged. For example, Noreini, Meskauskas, Langdon and Webster (1986) report a study in which they compared physician performance on four different assessment procedures for physicians seeking specialty recertification. They compared the respondents' performances on Computer-Aided Simulation of the Clinical Encounter (CASE) which is an interactive approach based on real patients, with peer judgment using a weighted checklist, performances on multiple choice questions (MCQ) and written responses to patient management problems (PMP). The results indicated that all formats were equally valid although the multiple choice questions were most reliable and efficient per unit of testing time. They were followed by patient management problems and then CASE. According to the authors, statistical analyses indicated that procedures such as CASE and PMP made relatively small unique contributions beyond that obtained from the multiple choice questions alone. All procedures were assessing essentially the same aspects of competence. The authors conclude that while improved versions of the CASE and PMP approaches may increase their reliability and efficacy, the data obtained imply that "MCQ's [multiple choice questions] provide more precise estimates of ability while assessing the same aspects of competence as more in-depth, high fidelity simulations" (p. 303). It should be noted that no evidence has been provided which indicates the extent to which the competence measures tested correlate with on-the-job performance. Clearly the assessment of profession-related performance is a complex matter which is far from resolution.

METHODS AND PROCEDURES

Perhaps the most frequently repeated statement in the needs assessment literature is that there is no one right way to conduct needs assessment (Kaufman and English, 1979; Witkin, 1977). This is not meant to imply that there are no wrong or inappropriate ways to design a needs assessment but rather to indicate that each needs assessment must be designed to meet the unique needs of the given situation. The purpose of this section is to review some of the general methodological issues and procedures which should be kept in mind when developing a needs assessment protocol.

Review of Current Models

At the time Witkin (1977) summarized the assessment technology then available, she expressed the hope that a comprehensive but flexible decision-based model would be developed to incorporate existing needs assessment instruments and to indicate procedures for filling any remaining gaps. Although no such single model has been developed yet, Pennington (1980) presents and critiques several needs assessment models which have been identified. They are:

1. The self-fulfillment cluster. Included in this model are both random appeals, designed to attract large segments of the general population, and selective appeals focused on the presumed needs of a specific population such as a given group of professionals. Programs based on this model generally use pretested formats. This is a market-driven approach whose purpose is to create and maintain a market rather than focus on learning needs. It tends to lack measurement precision and objectivity.
2. Individual appraisals. This may be either a collaborative or noncollaborative effort in which individual learners determine their

own needs. Among its drawbacks are a potential lack of vision by learners in recognizing and understanding their own essential learning needs. Another concern is that biases may be built into the measuring instruments. This approach depends on individual initiative for specification and follow-up.

3. System discrepancy models. This approach attempts to define deficiencies (e.g. inadequate patient care) and develop programs related to difficulties within the learners' working system. A significant problem with this approach, which derives educational objectives from the goals or needs of clients, is that the programs developed tend to focus on general educational improvement for a professional group rather than on meeting individual learners' specific remedial or enhancement needs.
4. Diagnostic models. This approach defines a need as something whose absence or deficiency proves harmful. It uses knowledge and logic to decide what gaps would be harmful. The needs can generally be described in terms of a performance deficit (nurses need to achieve mastery of cardiopulmonary resuscitation) or a treatment deficit (nurses need training in CPR). Pennington contends that "treatment needs that are broadly described are poorly related to feasible [underline added] actions, while performance-deficit needs statements give no intrinsic guidance to what treatment is needed." (p. 6)
5. Analytic models. This approach defines a direction in which improvement should occur. It places a premium on informed judgment and systematic problem solving. Unlike the diagnostic model it focuses on improvement, not remediation, and doesn't require advanced statements of success criteria. Among its limitations are its

abstract nature, which may be difficult to operationalize, and its required use of skilled problem solvers.

6. Democratic models. This approach involves interactive and collaborative efforts in specifying needs. It often involves voting or nominal group processes such as delphi techniques. One primary drawback is that if a consensus is required it may discourage dealing with critical or controversial issues. In addition, the democratic approach may be very time consuming.

Deciding What to Assess

Guiding questions. How does one decide what needs to assess? Cross (1980) suggests it is easier to implement a needs assessment that sets out to solve an already identified problem rather than one that sets out to find the problem.

Until either one or a combination of the models reviewed above is determined to be efficacious, or a new model emerges as the definitive guideline for designing assessments of professionals' continuing education needs, it may be best to begin by asking two questions formulated by Witkin, (1977, p. 14) "Why do I want to do a needs assessment?" and "What will I do with all the data when I get it?" The answers to these questions will, of course, vary widely.

Pennington (1980) describes three possible purposes of a needs assessment from the continuing professional education perspective. The first is to analyze clientele by, for example, comparing those who participate in continuing education programs with those potential learners who do not. A second purpose would be to identify areas of demand, a process related to market research. The third purpose would be an attempt to identify discrepancies between current and desired sets of circumstances as well as to define the magnitude, components, and intensity of these gaps.

Considering assessors' needs. Cross (1980) echoes and expands upon Witkins' suggested initial questions when she states that the greatest inadequacy in designing and implementing needs assessment is the failure to assess the information needs of the needs assessor and to design data collection procedures appropriate to those needs. She also emphasizes the importance of building implementation questions into the needs assessment process, commenting that too often data collection is where needs assessment begins and ends. Ideally, the designs should include plans for developing programs based on the needs discovered, marketing those programs, and evaluating their effectiveness.

Clarifying ends. Kaufman and English (1979) present an elaborate process based on their contention that in planning one must carefully determine ends first, documenting and justifying them. They contend that most people confuse means and ends, but that appropriate planning will differentiate them. The value system they espouse is based on a belief that nothing is more caring and humane than a process that takes individual learners into consideration and helps them grow. Thus they might ask, "What data do we need in order to determine the needs of individuals who wish to develop professionally?"

While for Kaufman and English the ultimate client is the individual learner, they generally look at individuals within the context of an organization. They propose two overarching references to guide needs assessment planning. First, and in their view the preferable guide, are the needs determined from outside the profession or organization. They argue that a rational and logical starting place is to study and identify those skills, areas of knowledge, and personal attributes that are important to the users of professionals' products or recipients of professionals' services. A second referent is internal to the organization or profession in question and

involves a consideration of internally identified goals, methods and means to meet required and desired outcomes. Kaufman and English strongly urge that external assessment data be used to augment those which are obtained internally.

Additional Methodological Considerations

Levels of assessment and sources of data. Kaufman (1986) suggests that two types of data are useful in a needs assessment and may be combined to determine actual needs and to set priorities among them. The first is "hard" data, distinguished by its performance-based origins and statement in quantitative terms. It is generally based on controlled, observed performances. The second type is "soft" data, distinguished by its perceptual origins. These "sensed needs" may be based on the perceptions of experts, prospective learners, and others involved in a needs assessment.

Levine et al. (1984), in a consideration of needs assessment in the health professions describe three levels of needs assessment, each of which requires data from somewhat different sources. They are the strategic, programmatic, and project levels.

The strategic level, which they suggest repeating every three to five years, provides information for long-range planning within an organization or profession. It can help identify general content areas as well as programming directions for individuals. Data sources for this level of needs assessment usually would include analyses of secondary sources such as reviews of profession-specific literature and existing records. Such reviews can help to uncover current issues, recent and anticipated additions to the knowledge base, and technological and legislative changes that might impact professional practice. Environmental scanning also should be done at this level to determine pertinent social, cultural and environmental factors likely to

affect the profession. Needs of a specific institution or of local communities as well as those at the state, regional and national levels should be considered. Input from actual or potential clients as well as the general public can be obtained, if desired, through surveys or interviews. Demographic patterns also are a useful source of information at this level.

Needs assessment at the programmatic level, which Levine and his colleagues suggest repeating yearly, is conducted to provide information regarding specific concerns within areas that had been identified more generally at the strategic level. It involves a detailed examination to determine whether a particular group of professionals has specific problems or needs in content areas of the profession. Generally, priorities would be determined based on learners' needs relative to their work setting. Sources of data would include those used at the strategic level as well as the gathering of professionals' own perceptions of their needs, perhaps in survey form. These needs might be considered in relation to profession standards, normative sources, and perhaps client opinions and attitudes. Input from superiors, peers, and experts in the field might also be sought.

The third or project level of needs assessment is one which Levine et al. assert is ignored often. Its purpose is to determine specific needs of individual learners so that interventions can be planned appropriately. It involves the use of direct measures of professionals' existing status. Both on-the-job performance assessments and measures of the current knowledge, skills, and attitudes of individual professionals would be pertinent. Data sources at this level would be those obtained by implementing any of a wide variety of individual assessment techniques including direct observation, task simulation, inspections of work products such as reports and records, formal cognitive testing, clinical performance testing, self-assessments, peer reviews, and more.

Levine and his colleagues (1984) join many others in contending that continuing education programs based on an understanding of professionals' specific practice-setting requirements and their present knowledge, skill and performance levels are more likely both to benefit individual learners and to have an impact in the work setting than are general update programs which are not need-specific.

Issues in choosing instruments. The instruments used to obtain both hard and soft data must be chosen carefully. Klemp (1979) mentions five major areas of concern in evaluating the appropriateness of a given procedure to measure competency. These considerations would hold for measuring other aspects of professional ability as well. They include sensitivity, the ability to reflect variations of competency; utility, the degree that the measure permits variation in the range of responses without an unduly restricted floor or ceiling; uniqueness, a lack of redundancy with measures of other competencies; reliability, the degree of consistency with which the instrument measures a given property; and validity, the extent to which the instrument measures what is intended. Klemp suggests that operant measures, that is, those tests which present situations not including the expectation of a certain type of response, have the greatest potential for including the above properties, with the possible exception of reliability in scoring.

Klemp makes one other point of relevance in this discussion. He proposes the use of a number of different measures to assess complex phenomena which are involved in professional performance. He suggests that in doing so each competency should be measured by more than one method and that each method simultaneously measure more than one competency as well. Thus a relatively small number of measures can establish convergent validity and lead to greater generalization than would be likely if one measure alone were used. This

approach also helps determine which competencies are likely to be important in combination. It has been referred to as multitrait-multimethod measurement.

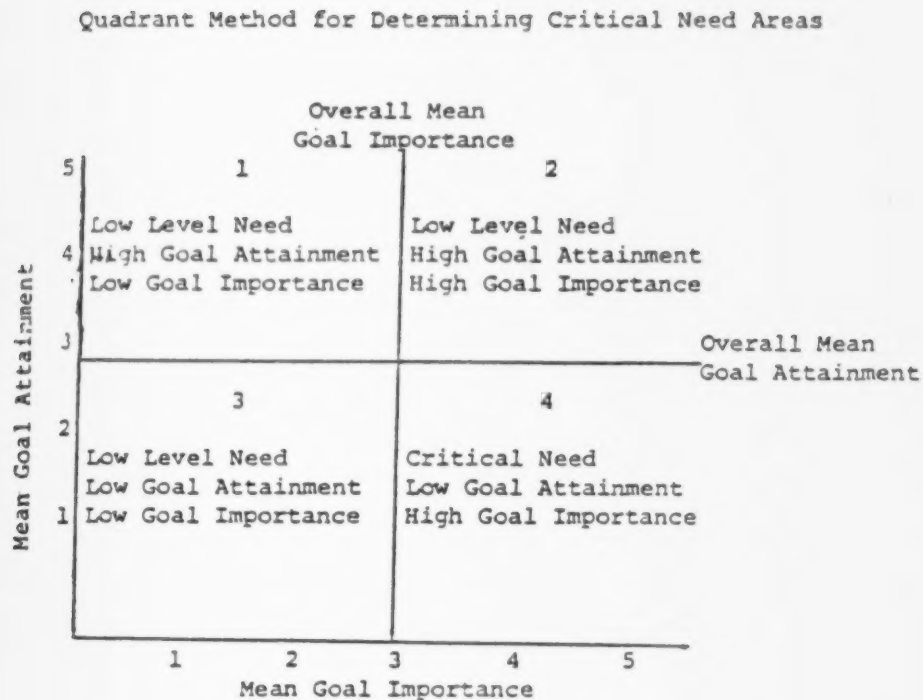
Procedures for determining priorities among needs. A thorough needs assessment should culminate in determining a priority order for addressing uncovered needs. Ideally, it also should suggest solutions using specified criteria for choosing among available alternatives. A number of methods and guidelines have been proposed for doing these tasks. In considering ways to determine which needs should be met, Kaufman and English (1979, p. 305) label a need selected for closure as "a problem". They propose determining priorities by answering three questions about each need or problem: "(1) Why this problem versus all other problems? (2) Why the selected solution over all the other available alternatives? and (3) How will one know when the problem is solved?" The first two questions will be addressed below. The third, which relates to program evaluation, will not be addressed in this discussion.

Several means have been suggested for answering Kaufman and English's first question. For example, Rookey (1975) proposes using a discrepancy index. First he suggests asking those doing the needs assessment to rank the importance of the needs discovered on a five point Likert-type scale from very high (5) to very low (1). At the same time, he recommends asking respondents to assess the current status of each item on the same scale; that is, to indicate the extent to which the ability in question deviates from desired or required levels. Thus the importance of effective communication skills might be ranked very high (5 on this scale) while individuals' current level of communication skills may be ranked low (2 on this scale). He then suggests subtracting the "should be" rating from the "is" rating. The greater the difference (in this instance -3) the greater the discrepancy. At this point,

he suggests rank ordering needs in order of their amount of discrepancy and working only with those that have negative values.

A method of plotting these discrepancies taken from McCaslin and Lave (1976) is shown in Figure 1. Only the items plotted in the fourth quadrant are identified as critical needs.

Figure 1.



McCaslin and Lave point out that different needs assessment models take various factors into account when rating needs statements. They briefly describe three of the most commonly used methods. The first, in which priorities are set by starting with those needs related to the goals rated highest in importance, is the easiest to do but the least valid. This is because a goal is not the same as a need. The second, the discrepancy approach described previously, is somewhat better since it takes two factors into account. However, it tends to oversimplify the real situation by not taking factors such as feasibility and utility into account. A third approach uses a combination of analyses including qualitative statements. This strategy takes more factors into account and can integrate perceptual data with objective data. Although it is usually the most valid approach, it is more difficult to use since generally no clear guidelines are offered. Also, it is not as easy to communicate to others as the first two procedures. Among the factors that might be taken into account in such a priority determination model are the following:

1. The initial rating of the importance of the goal.
2. The ranking given each need by each group involved in the [needs assessment] survey.
3. The size of the gap between actual and desired level of performance.
4. The likelihood of success of a new program.
5. The assessment of existing programs and resources.
6. The ability to change existing programs and resources.
7. The validity and reliability of any standardized tests [or measures] used.
8. The validity of any sampling strategy used to determine actual status. (p. 45)

Kaufman and English (1979; p. 198) recommend another approach for prioritizing needs that requires asking two questions simultaneously about each item identified: "What does it 'cost' to meet this need?" and "What does it 'cost' to ignore this need?"

The cost factor is one stressed by Connor, Jacobs, Altman and Aslanian (1985). They point out that both individuals and organizations have many needs but limited time and resources. Thus, it is often necessary to divide needs into two categories: those that are essential, and thus worth sacrificing to meet, and those that are less essential, however desirable. Connor and his associates note that when clients are asked to rank order a number of needs they often insist that all of them are high priority. The authors report attempting to resolve this dilemma by using a decision-theoretic approach based on a "willingness to pay" paradigm. The purpose of this procedure is to find a critical cutoff point at which the majority of decision makers agree they can "just barely afford" to meet a given need.

In their study, Connor and his colleagues found that the respondents' stated needs for problem resolutions were not always commensurate with their demand (operationally defined as an expressed willingness to pay). In assessing their model, the authors conclude that refinements must be made to develop a more reliable method for assessing demand intentions so that these can be determined before spending inordinate amounts of time to develop solutions to expressed needs which are economically or politically infeasible.

Once it has been decided that a need is worthy of attention, Kaufman and English (1979, p. 311) provide a list of criteria that can be used for choosing among proposed solutions. They are:

1. Cost
2. Available expertise

3. Time required
4. Complexity of resolution
5. Acceptability to the intended audience
6. A priori decisions (e.g. if solution conflicts with other plans)
7. Demonstrated efficacy
8. Conventional wisdom or common sense.

However, in mentioning these criteria the authors caution that often the group decision making process can quash potentially useful novel solutions.

RECOMMENDED DIRECTIONS FOR NEEDS ASSESSMENT IN CONTINUING PROFESSIONAL EDUCATION

In suggesting recommendations and guidelines for the use of needs assessment in continuing professional education programs, there is a temptation to propose elaborate procedures that both take into account the various theoretical constructs presented and circumvent the criticisms of many of the current strategies. This desire is tempered by several factors.

First, little research is available to guide decisionmaking about which of the many needs assessment approaches described are most accurate or efficient in determining professionals' ongoing educational needs. Considerable research must be done before substantive answers to these questions are likely to emerge.

Second, the time and money available to conduct needs assessment in any given instance generally are quite limited. Costs allocated for a needs assessment process often come out of budgets for providing learning activities to be offered subsequently. Thus, one cannot separate recommendations on needs assessment from concerns about their cost effectiveness as part of an overall continuing education program.

A third factor to consider is the pressure to produce short term results in meeting continuing education needs of professionals. Immediate needs must be addressed while simultaneously working for more long-range goals such as developing a systematic, integrated continuing professional education learning resource system. Some compromises are needed for the sake of expediency and practicality. It is unrealistic to wait until an ideal system has been developed before getting on with the job. The short-term necessity of using available information and resources to develop some practical needs assessment strategies is the basis for the questions raised and the recommendations proposed below.

What needs should be assessed? Needs representing deficits in professional practice and those suggesting gaps between adequate and exemplary practice should both be addressed if the goal of continuing professional education is the optimal development of individual practitioners. Methods encouraging respondents to express their felt needs should be incorporated in those procedures that use potential learners as a source of information. Well-formulated survey questions, the use of group meetings conducted in a way that respects confidentiality yet encourages creativity and openness, and the use of appropriate projective as well as objective instruments can all help. The goal should be to uncover both those needs that can be determined by objective means and others which are less obvious but equally important, such as attitudes, values, and motivations.

What models of needs assessment are most appropriate? Pennington's (1976) critique of current needs assessment models provides valuable warnings about the limitations of each model. This does not necessarily mean that the current models can or should be abandoned, but rather that their limitations should be taken into account and overcome as much as possible. For example,

the self-fulfillment or market driven approach is often criticized by educators. But excellent programs that do not attract learners are useless. Perhaps marketing knowledge needs to be used as a tool to make more attractive those programs originally designed with more lofty motives in mind. In other words, the educational products developed should be market sensitive if not market driven.

The individual appraisal model described by Pennington is criticized by him as being limited by the potential learners' own lack of awareness, motivation, or understanding of their needs. However, it does offer a practical approach to needs assessment. If assessments using the individual appraisal model can be designed so they motivate and enlighten the respondents at the same time they obtain information from them, then it can be very useful. Whenever possible, the process itself should include feedback to the individuals who participate and appeal to their enlightened self-interest.

The democratic model which requires interactive and collaborative group efforts in specifying needs can serve as a supplement to the other models. It provides an opportunity for experts and supervisors, as well as clients, the general public, and groups of practicing professionals to provide input from their various perspectives. This model can be useful if it is not structured so that the process of gaining consensus eliminates the opportunity for creative decision making. The greatest limitation of this approach, in addition to its time consuming nature, is the possibility that group decision-making will lead to conformity and acceptance of the lowest common denominator. Effective design, which does not require complete consensus, and skillful facilitation, which guides participants into suggesting novel, creative, and practical approaches, can minimize this potential deficit.

A combination of the final three models discussed by Pennington -- the system deficiency, diagnostic and analytic models -- has merit and also reduces the deficiencies of any one of these models used alone. The system discrepancy model, in which organizational needs are the focus, can lead to the discovery of profession-specific needs but is not of use by itself in determining the particular needs of given individuals. Used in conjunction with other approaches it provides some important information. The diagnostic model can compliment the system-discrepancy model because it focuses on the extent to which individual participants do or do not perform as the system requires, while the analytic model addresses those needs that might enable individuals to become exemplary, not just minimally acceptable in their work. In this regard it may be particularly useful to focus on assessing those behaviors which Zemke and Kramlinger (1982) refer to as "critical differences" between high- and low-level performers rather than attempt to assess all job-related tasks for a given group of professionals.

At what level should needs assessment be conducted? Any or all of the three levels described by Levine et al. (1984) may be suitable. The strategic level is appropriate when the goal is to obtain a broad view of issues likely to impact on professions during the following few years. It can examine community, institutional, state, and national concerns that warrant education for individual practitioners. Such an approach may be quite modest and straightforward, using secondary sources for the most part. On the other hand, a broad-based needs assessment approach can be elaborate and expensive enough that the combined efforts and resources of a variety of organizations concerned with the development of professionals may be needed. Among interested parties might be colleges and universities, state and national organizations, and practitioners. In some cases business or industrial groups may also have a valid interest in participating.

The programmatic level of needs assessment is helpful in determining which of the needs identified at the strategic level are of relevance to particular audiences of professionals for whom continuing professional education activities are to be developed. It helps to narrow down and make specific those topics that should be addressed. A needs assessment at this level should take into account factors in addition to educational needs that may be contributing to a perceived problem. For example, constraints in the work setting that cannot be overcome by educational activity alone would be looked into at this level. The expressed needs and demands of professionals should also be considered.

The project level of needs assessment is the one at which the specific needs of individual learners are the focus. Thus, if a problem identified at the program level suggests the need for an educational activity, a project level needs assessment procedure would be used to determine whether the material should be presented at a beginning or more advanced level, as well as what specific content matter is most needed for the particular audience to be addressed. Used well, a project level needs assessment reduces the likelihood of developing material based on incorrect assumptions about participants' knowledge, skills, and attitudes. It also can assist instructors in developing materials based on participating professionals' particular practice situations and thus lead to more interesting and beneficial programs.

What domains should be addressed? Each of the domains (knowledge, competence, performance, attitudes, opinions, values, and so on) may be appropriate to assess in a given circumstance. The key point is that those planning and implementing needs assessments should distinguish among the various domains and be sure that the instruments, procedures, and information sources they choose do indeed assess the intended domain.

Essentially all professionals have knowledge needs. As the knowledge base expands, it is critical for individuals to update their knowledge whether through attending lectures, reading books and journals, or via other delivery methods. Some professionals may also have remedial knowledge needs due to a previous lack in their preparation or changes in their responsibilities for which they had not been adequately trained.

The competence domain addresses the ability to translate knowledge into practice. In some preprofessional educational programs this step is left to the individual, the assumption being that the step from understanding to implementation is an obvious one. However, there is considerable anecdotal information, if not hard data, to suggest that many professionals benefit from experiential learning which provides an opportunity to translate theory into practice. The uncovering of such needs is of significance to continuing professional educators.

An emphasis on the performance domain pervades much of the literature on needs assessment for professionals. However, there are some arguments against focusing exclusively on this domain as a preferred approach. It is evident, for example, that objective measures of on-the-job or simulated performance are quite costly. In addition, they often assess only a small sample of the tasks performed by individuals with complex jobs, and tend to focus on observable behaviors without taking into account such vital cognitive components of effective performance as problem-solving and reasoning abilities. They also tend not to take into account personal and environmental factors which may compromise performance from day to day.

It may be helpful to assess the performance domain somewhat indirectly. Scisson's typology as described by Long (1983) can provide some guidance in this regard. For instance, if one accepts the premise that performance is a

combination of competence plus attitude, motivation, and opportunity, then an appropriate needs assessment strategy might include measures not only of those components that assess practitioners' competence, but others that assess their perceptions and attitudes regarding the constraints and motivations for using the competencies they have. It would also look at environmental factors that either foster or interfere with performance.

Thus, despite the emphasis in the literature on performance assessment, it would seem premature to write off assessments of knowledge, competence, attitudes, and other factors when few data have been reported which justify using relatively expensive approaches such as on-the-job observations, computer simulation models or other complex simulation approaches.

What sources of information should be sought? It generally is useful to obtain data from more than one source and use more than one method. Among the most relevant sources of information for determining the needs of practicing professionals are those of the practitioners themselves, both objectively and subjectively determined, those of experts who have a broad view of the profession, and if possible, those of the professions' constituents.

Self-determined needs of individual professionals themselves are important despite the possibility that some professionals are unlikely to be aware of their learning needs. If the circumstances under which they are asked to determine their needs are nonthreatening, confidential, and in a format which broadens their consideration of possible options, then this approach is likely to provide maximum information. Individual interviews, focus group interviews, or surveys may all be appropriate means to do this, as might projective tests of various sorts, attitude scales and others. Peer group formats can also provide useful information.

Objectively determined data, which could include measures of knowledge, competence, and performance, and which would be evaluated either on the basis of previously determined criteria or in relation to group norms, also can be helpful. Procedures used in this category would need to vary depending on resources available for needs assessment, and the long-range use to which the data would be put. Thus if the information obtained were to be used to design a short workshop to be offered once or twice, an elaborate needs assessment would be less justified than if it were to be used as the basis for designing an extensive curriculum for professional development. This category would include written and practical exams, reviews of records (quality assurance) as well as simulations and on-the-job observations.

Needs determined by experts, although sometimes criticized as being likely to reflect "armchair philosophizing" and as often lacking in a realistic and accurate understanding of professionals' daily work situations, cannot be ignored. Experts, who often include supervisors and administrators as well as individuals outside of the practitioners' work setting, may be sources of funding as well as determiners of whether given professionals may or must seek continuing professional education. Experts' input is often particularly useful at the strategic level of needs assessment in which long term needs are investigated. They may have a broader view of a profession and its demands than do some practitioners, especially in defining performance enrichment as compared to performance discrepancy needs.

The professions' clients or consumers are the people to whom practitioners are ultimately responsible and accountable. The extent to which they believe professionals are meeting their needs is likely to have a bearing on future support for the profession and be a stimulus for motivating professionals to further develop their skills. Constituents can provide a

unique and valuable perspective helpful in designing a continuing professional education curriculum that benefits society as well as the individual practitioners themselves.

What factors should be considered when putting needs in priority order? Once needs have been determined, the difficult task of choosing among them must be addressed. Due to limited resources, it is often necessary to decide which educational activities should be developed and which deferred. There are a number of methodologies that can be used in setting priorities, ranging from democratic processes, such as having representative groups rank order needs, to administrative fiat. In many cases, it is the educators whose task it is to analyze the data obtained and recommend final choices. If their decisions are unwise or inappropriate then these educators run the risk of expending resources for developing courses that are not well attended or do not meet the most pressing need of the learners they are trying to serve.

There are a number of factors beyond the specific needs of the practitioner that should be considered in choosing which of various identified needs to address. On the practical level, factors such as cost effectiveness and available resources must be considered. Philosophical issues such as the relative impact of the mastery of a topic in leading to positive change in practitioners' contributions also should be weighed. This suggests that social realities and values need to be taken into account. Finally, distinguishing among potential learners' needs, their wants (desire for change) and their demands (agreement to bear costs) is important in determining whether audiences exist for a proposed educational activity.

Whose perceptions of continuing professional educational needs should carry the most weight in the event of conflicting evidence or varying opinions among professionals, their employers, accrediting agencies, and the public they serve? Since it is individual practitioners whose motivation and commitment are required if learning is to take place, they should be a primary focus of consideration. This would seem particularly true for a continuing professional educational program in which higher education institutions play a key role. However, as Monette (1979) among others has stressed, the needs assessment process cannot avoid making value judgments and taking into account variables beyond the needs of individual learners themselves. Ideally, a balance can be struck that attempts to meet the divergent needs of all concerned.

If conflicts occur, the continuing professional educator may be able to play a facilitative role in assisting each of the groups involved understand the perception of the others and in helping those involved make mutually acceptable compromises. For example, individual practitioners may need to obtain a clearer understanding of institutional goals and the constraints that have led employers or accrediting agencies to make certain demands upon them. They may also benefit from being informed about the public's perceptions and helped to assess the validity of the data on which the perceptions are based. This may require that professionals face their own shortcomings, an often unpleasant task. On the other hand, if professionals believe that the public's views are invalid, this may suggest the need for professionals to more effectively educate the recipients of their services. Without taking societal and institutional factors into account, even excellent educational activities are not likely to be successful in attracting learners or providing learning which is relevant as well as interesting.

What are some fruitful directions for research and development to improve needs assessment procedures? It is evident in reviewing the needs assessment literature that much creative and useful work has been done. However, it is far from coherent, easily accessible, and maximally useful in providing functional guidelines for those conducting needs assessments. Thus there are many areas of research and development which, if successful, could increase the usefulness of needs assessment procedures. Four such areas will be discussed briefly.

Long (1983) suggests that the most productive future research should be concerned with clarifying the functional characteristics of need. While that may overstate the case, Long does make a valid point in suggesting that if educators have difficulty in communicating their basic concepts, significant advances in needs assessment will be hampered.

Goldsmith and Pottinger (1979) focus their suggestions for future research on the development of new techniques for assessing competence in ways that address the complexity of competence as it applies to professionals. They acknowledge the potential costliness of using techniques such as client feedback, self-evaluation, and other means of assessing what people in fact do rather than just what they know or can do under artificial conditions. However, they argue that while initially there would be great costs for developing non-biased and relevant instruments, these costs would be worthwhile in the long run because of the benefits of having needs assessment instruments leading to better understanding of what constitutes competence and, in turn, effective job performance. The authors propose seeking funding for alternative approaches using innovative methods of data gathering ranging from videotaping and on-site observation to simulations and role plays.

Many of Goldsmith and Pottinger's suggestions have been implemented in recent years, most notably during the Continuing Professional Education Development Project funding by the W. K. Kellogg Foundation and carried out at The Pennsylvania State University from 1980-1985 (Smutz et al. 1981). While Goldsmith and Pottinger's arguments are persuasive in many ways, the resulting needs assessment procedures may not be practical, even if valid, unless the costs of implementing such innovative approaches are within the budgetary constraints of those who sponsor assessments.

A point made by Houle (1983) is worth reiterating here. He notes that while the analysis of individual performances may indeed be the only true test for continuing professional education, it may also be true that other, less costly approaches are "good enough". Thus, another useful research question might be to determine if it is indeed true that simpler approaches are adequate enough.

Witkin (1975) suggests that research is needed to determine relationships among the organization whose needs are being assessed, the type of needs assessment models used, the types of communication involved, and the resulting decisions made. While some clarification of each of these factors has been made since Witkin proposed this research direction, no attempt to study the interactions among the elements or the results of various combinations of needs, models, and results is readily available in the literature. It would be a complex but useful project to tackle.

Another concern which would be helpful to address regards effective methods of information dissemination. Johnson (1980) points out that the precise ways in which adults differ from younger students and a determination of what specific requirements for new programs and services are required by adult students still are not well known and understood by those who administer

and teach in higher education. Thus, even when significant information on these topics has been obtained through needs assessments and other procedures, unless the information can be shared effectively so that appropriate parties understand and are motivated to react to this information, needs assessment will not have fulfilled its potential. Considerably more work needs to be done in developing effective communication between potential recipients of needs assessment information and those who collect, analyze and interpret the data.

APPENDIX

A REFERENCE GUIDE FOR NEEDS ASSESSMENT

Implementing a Needs Assessment Plan

The steps in needs assessment listed below are a distillation of suggestions obtained from a number of sources including Levine et al. (1984), Kaufman and English (1979), McCaslin and Lave (1976), Pennington (1980), and Rookey (1975).

A. Preplan

1. Decide to conduct a needs assessment. The impetus may be a previously recognized problem or the decision to explore the desirability of implementing a continuing professional education program.
2. Formulate a statement of purpose in order to clarify the reason for doing a needs assessment and determine the level at which to begin.
 - a. The strategic level is appropriate to determine changing conditions, general trends, or new developments in the field may indicate the need for new continuing education offerings for professionals.
 - b. The programmatic level is appropriate to identify specific educational offerings or topics to be developed in light of information obtained at the strategic level or from other sources.
 - c. The project level is appropriate to determine the current level of performance, specific content needs, preferred learning styles, and particular learning opportunities and resources of the learners to be addressed. This information can be used to design educational interventions meeting specific needs of particular individuals.

3. Identify the audience(s) who will be affected by the needs assessment results. Possible audiences might be educational planners, potential faculty members, potential learners (practicing professionals), employers, professional or accrediting agencies, consumers.
 4. Convene a core committee representing various interested parties.
 5. Obtain a commitment from the sponsoring group(s) to use external (consumer) references and practicing professionals' input as well as existing organizational or professional goals and objectives as a basis for planning whenever appropriate.
- B. Plan Over-all Needs Assessment Process
1. Familiarize the planning committee with the general steps involved in a needs assessment process and explain, or determine with the group's help, the specific purpose of this needs assessment.
 2. Clarify the issues to be addressed, whether general or specific.
 - a. General issues might be:
 - 1) Are there new technologies which have impacted or will impact professional practice?
 - 2) Are there major problems or community needs which this professional group should address?
 - b. Specific issues might be:
 - 1) What, if any, educational needs must be addressed to enable (specific profession) to effectively cope with the AIDS epidemic? revised medicare regulations? building code changes? new federal tax laws?
 3. Define the scope of the needs assessment. Keep focused on the specific issues determined previously, making sure that needs

assessment planners and primary users concur. Then consider those factors which will influence planning options. For example:

- a. Available expertise
 - b. Budgetary limits
 - c. Support staff
 - d. Access to professionals, either on-the-job or in other settings
 - e. Supplies and services
 - f. Time constraints/deadlines
4. Assess any additional obstacles or restraints such as political factors or competing providers which may influence the needs assessment process.

C. Prepare for Data Gathering

1. Identify type(s) of data needed. This may include information about
- a. Professionals' performance in which current behavior is considered in light of accepted standards or future goals
 - b. Characteristics of potential learners such as demographic information, work responsibilities, and their interest in mandated or voluntary continuing education.
 - c. Specific work setting variables which are useful in determining whether educational changes, non-educational (environmental) changes, or both are required to meet determined needs.
 - d. Influences beyond the workplace which could include both profession-specific and more general environmental, social,

cultural and economic factors that impinge on professional practice.

2. Consider which sources of data are most appropriate and practical. Possibilities include input from:
 - a. Potential learners. Their perceptions of educational needs may be sought directly through interviews and questionnaires, indirectly through projective techniques or via a variety of self-assessment approaches. They are also the source of performance data whether by written exams or practical exams, direct observations, or simulations.
 - b. Peers. They may serve as sources of normative data, standard-setting, or needs determination.
 - c. Experts or superiors. Their input may be in the form of delineating professional standards or providing information about relevant research findings, new technologies, and other significant developments. Their perceptions of practitioner's needs also may be useful.
 - d. Consumers and the general public. These data are usually in the form of opinions and attitudes about professionals' competence as well as their effectiveness in communicating, educating, and counseling.
3. Prepare for data gathering
 - a. Identify and select specific needs assessment techniques (see section on specific needs assessment procedures). That is, decide exactly what is going to be done, in what sequence, when, and by whom. Consider measures of knowledge, competence, skill, performance, and opinions and attitudes as

appropriate. Be sure to determine what, if any, useable data are already available.

4. Plan to obtain both hard (objective) and soft (subjective) data. A mix of both generally is considered to provide the best data base. It is also useful to triangulate by looking at issues from all available perspectives in order to make the best possible judgments. This ideal must be balanced against costs, of course.
5. Set criteria or standards against which knowledge, competence, and performance will be measured.
6. Inform the sponsoring group(s) of the progress made to date and obtain specific commitments to gather data from all necessary parties.

D. Gather and Reduce Data

1. Gather data from all relevant sources.
2. Summarize the data gathered in forms which are understandable to the intended audience.

E. Analyze Needs

1. Interpret the data so that any existing needs are identified. That is, determine if gaps exist between results obtained from the individuals or group(s) being assessed and the standards against which they are being measured.
2. Specify whether the identified needs are educational (require the acquisition of knowledge, skills or attitude changes) or non-educational (require staffing or policy changes, new equipment or other environmental changes).
3. Rank identified needs by using an appropriate decision-making procedure, (see procedures for determining priorities among

needs), in order to determine priorities for both long and short term implementation.

4. Determine solution requirements and alternatives for meeting each identified need which has been judged to be a high priority.
5. Select the most practical, realistic, and cost effective solution strategies from among available alternatives.

F. Report Findings

1. Report findings to decision makers and other relevant groups and individuals.
2. Tailor specific information to meet particular needs and interests of each recipient. For example:
 - a. Educational planners may need only brief notes that would be included in documentation about planning specific programs.
 - b. Institutional administrators may require a formal report which justifies requested funding for program implementation.
 - c. Potential learners may be informed about the means for addressing their educational needs in a variety of ways.
 - 1) If the needs assessment is at the programmatic level, they can be informed of resulting educational offerings by means of general publicity.
 - 2) If the needs assessment is at the project level and includes the assessment of individuals' needs, these may be reported privately along with suggestions for which needs might best be resolved through education and which by other means. In addition, the continuing educator may be called upon to counsel the professional who does not perceive as felt needs those topics that have been identified through other sources as real needs.

G. Complete the initial phase of the needs assessment

1. Evaluate the needs assessment process itself. This is best done throughout as well as at the conclusion of this phase. Among the issues to consider are:

- (a) What implied or explicit values and goals have guided the process?
- (b) To what extent has the needs assessment accomplished its goals?
- (c) What revisions would be useful in order to improve a future needs assessment?

2. Schedule the next phase of the needs assessment. Plan to initiate the next phase of the needs assessment at a specific time in the future when the effectiveness of having implemented the proposals can be assessed and a determination of new or remaining needs can be made. This step is in keeping with the philosophy that needs assessment should not be a "one-shot" occurrence, but part of an orderly, ongoing system of planning and decision making for continuing professional development.

Needs Assessment Procedures Categorized by Sources

1. Input from clients and general public
 - a. interviews of individuals or groups (structured, open-ended, cognitive, affective, focus group)
 - b. surveys
 - (1) format
 - open-ended
 - forced choice
 - multiple choice
 - (2) types
 - theory-based
 - empirical
 - (3) sampling procedures
 - random sampling
 - multiple-matrix sampling
 - mass mailings
2. Significant input from experts or superiors
 - a. appraisal panel
 - b. review of records and reports (e.g. utilization review)
 - c. critical incident technique
 - d. management by objectives
 - e. Delphi technique
 - f. focus delphi procedure
 - g. job analysis
 - h. performance audit
 - i. direct observation on job
 - j. survey/questionnaire
 - k. interviews
 - l. behavioral algorithms
 - m. fault tree analysis
 - n. behavior event analysis

3. Input primarily from peers
 - a. unmet needs conference
 - b. nominal group processes, e.g. delphi technique (also done by experts or public representatives)
 - c. peer review techniques (e.g. quality assurance)
4. Input primarily from potential learners (practicing professionals)
 - a. interviews (structured, semi-structured, unstructured; individual or group)
 - b. surveys/questionnaires (self-perceived needs)
 - c. self-assessment (with or without diagnostic feedback from others)
 - (1) projective questionnaires
 - (2) sentence completion
 - (3) card sort
 - (4) picture sorts
 - (5) competency model for self diagnosis of learning needs
 - (6) attitude scales
 - (7) job diaries
 - d. tests
 - (1) written examinations
 - (a) objective tests of knowledge
 - (b) standardized aptitude/achievement tests
 - (c) criterion-referenced tests
 - (d) competency-based tests
 - (e) operant tests
 - (f) proficiency exams
 - (2) practical examinations
 - (a) performance using "real life" situations
 - (b) simulations
 - (i) performance using actors/peers
 - (ii) complex problems (usually computer-based)
 - (iii) mechanical simulation (e.g. link trainer)
 - (iv) linear and branching simulations
 - (v) client-management problems
 - (vi) in-basket exercise

5. Procedures for putting needs in priority order
 - a. ranking or rating procedures
 - b. card sorts
 - c. budget allocation exercise
 - d. pair-weighting procedure
 - e. magnitude estimating scale
 - f. decision rule
 - g. delphi technique

Ways of Characterizing
Specific Needs Assessment Procedures

There are a number of different ways to categorize the many needs assessment strategies available. Among the most helpful are by:

1. Domains assessed

Knowledge
Competence
Performance
Insight and Understanding
Attitudes
Opinions
Values
Respondent characteristics
Work setting

2. Sources of information

Consumers, clients, general public
Employers/supervisors/peers
Professional organizations/experts
Practitioners
Products or outcomes
Profession-specific literature (standards, norms, new developments, changes)
General information and environmental scanning (demographic data, popular media, related disciplines)

3. Degree of objectivity

Hard "objective" data
Soft "perceptive" data

Other factors to consider in choosing an instrument are:

1. Precision of measure

Sensitivity

Utility

Uniqueness

Reliability

Validity

2. Inclusion of special features useful in the needs assessment process

Meets unique information needs of assessors

Includes way to order needs priorities

Has implementation questions built in

Indicates specific needs of individual professional

3. Appropriateness of using particular one or more of the needs assessment models described by Pennington (1980)

Self-fulfillment

Individual appraisal

System discrepancy

Diagnostic

Analytic

Democratic

4. Appropriateness for use at given step of Kaufman and English's (1979) taxonomy of needs assessment. These steps are:

ALPHA: Assume few or no "givens" concerning starting conditions and ground rules for operation or resolution.

BETA: Assume the validity and utility of the goals and objectives of the sponsoring or target agency. Attends to finding the gaps between current organizational outputs and required or desired outputs only.

GAMMA: Start by determining discrepancies concerning methods and means for problem resolution.

DELTA: Gap analysis relative to implementation of selected methods and means.

EPSILON: Gap analysis relative to the existing objectives derived, not to any referent outside of the implementing agency.

ZETA: A gap analysis for the entire process, based on the entire process as given and only discrepancies relative to the system are determined.

5. Appropriateness for given needs assessment level (Green, et al. 1984)

Strategic

Programmatic

Project

PROCEDURES FOR GATHERING DATA

Title: Algorithms

General Description: A flow chart of the processes, operations and decisions it takes to do a task. This analysis technique is especially appropriate for tasks such as medical diagnoses that are highly decisional in nature but may have fairly simple operations and processes, that is thinking and deciding about the task are more complex than its execution. Steps include (1) observe task performance; (2) have performer "think out loud" or later "debrief" self into tape recorder; (3) ask performer questions to help define sequences; (4) construct preliminary flow chart which separates operations and procedures, decisions and discriminations, and reflects the major sequences of activity. Obtain verification of algorithm by repeating process with at least one other effective performer and then review with appropriate subject matter experts.

Domain(s) assessed: Performance.

Source(s) of information: Effective task performers and subject matter experts.

Degree of objectivity: Objective with some subjectivity as well.

For use with following:

<u>Needs assessment models</u>		
☐ self-fulfillment		☒ individual appraisal
☒ system discrepancy		☒ diagnostic
☒ analytic		☐ democratic
<u>Steps in needs assessment taxonomy</u>		
☐ alpha	☒ beta	☒ gamma
☒ delta	☒ epsilon	☒ zeta
<u>Needs assessment levels</u>		
☐ strategic	☒ programmatic	☒ project

Requirements: Expert performers to observe and interview. Expert in developing algorithm. Subject matter experts to verify accuracy of algorithm developed.

Costs: Time required to observe and interview at least two performers per task, develop algorithm and verify it.

Purposes: To develop a detailed exposition of ways in which qualified performers solve particular problems when there are operations and conditions to follow. Useful as basis for assessing performance and developing subsequent teaching strategies.

Assumptions: The algorithm is an accurate model of the way humans think and function. It captures cognitive as well as behavioral processes. Process used is atheoretical.

Advantages: An orderly procedure for analyzing complex procedures. Leads user from collection of input data to a desired result. Reflects the way performers actually solve problems. Clearly defines sets of decisions and discriminations trainers need to teach.

Disadvantages: Not effective unless there are correct answers, specifiable inputs and outcomes or operations of an "if... then" nature. Can be interpreted too rigidly. Time-consuming to develop.

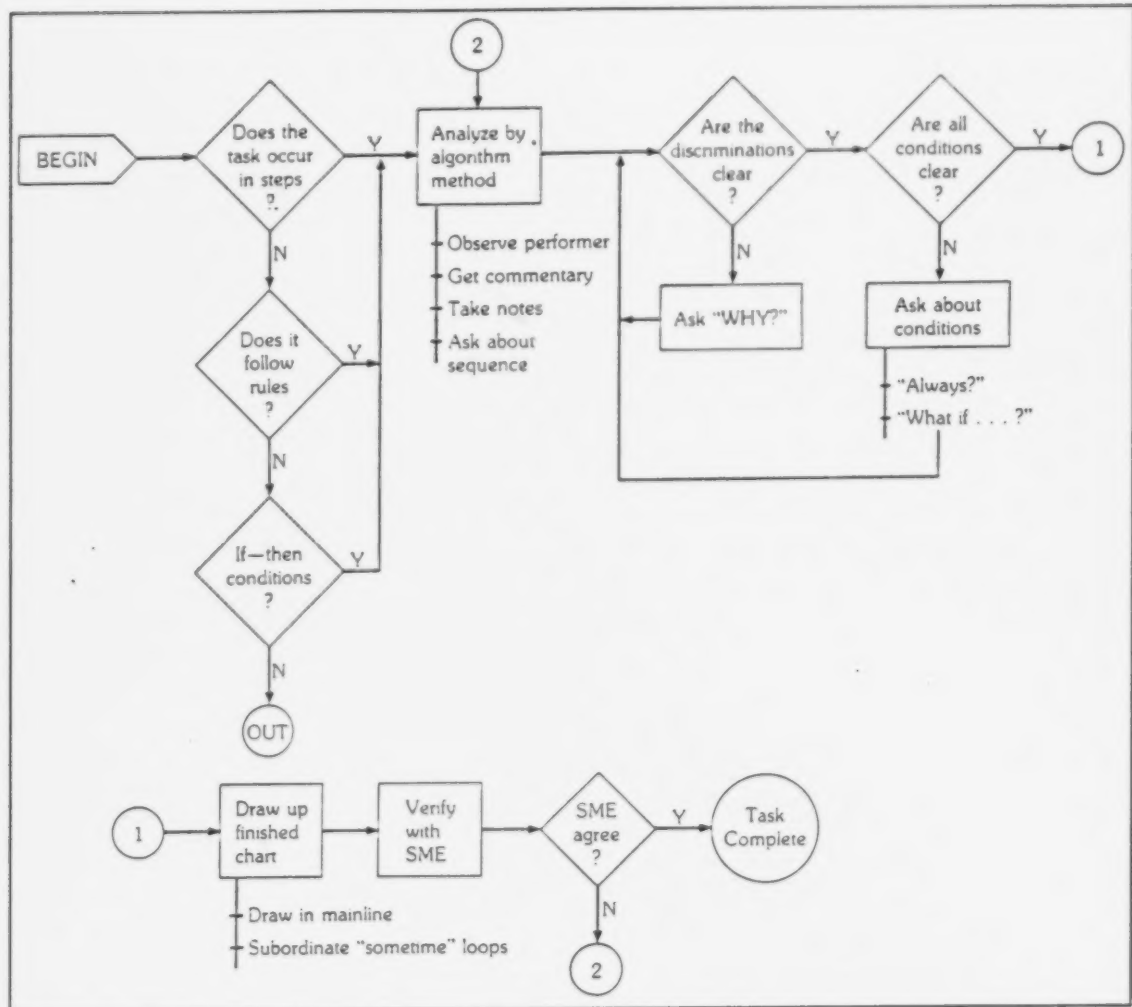
Key References: Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainer's Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley (1982).

Landa, L. Algorithmization in Learning and Instruction. Englewood Cliffs, New Jersey: Educational Technology Publications (1974).

Title: Algorithms (Continued)

Figure 2.

The following is an algorithm for developing algorithms:



* SME = Subject Matter Expert

From: Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainer's Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley (1982).

Title: Behavior Event Analysis

General Description: An approach to job analysis that focuses on variables which explain competence rather than on behaviors themselves. Consists of structured interviews of practitioners in which descriptions of a number of behavioral episodes are obtained (e.g. events in which person was particularly effective or ineffective). Respondents describe in detail when and where event occurred as well as feelings, thoughts and reactions related to them. Responses are recorded and analyzed by professionals to yield concepts which differentiate more effective and less effective practitioner performance.

Domain(s) assessed: Variable.

Source(s) of information: Professional practitioners.

Degree of objectivity: Both subjective and objective.

For use with following: Needs assessment models

☐ self-fulfillment	☐ individual appraisal
☒ system discrepancy	☐ diagnostic
☒ analytic	☐ democratic

Steps in needs assessment taxonomy

☐ alpha	☒ beta	☐ gamma
☐ delta	☒ epsilon	☒ zeta

Needs assessment levels

☐ strategic	☒ programmatic	☐ project
------------------------------------	--	----------------------------------

Requirements: Identification and cooperation of high- and low-performing professionals. Experts in concept formation techniques. Audio recording equipment.

Costs: Time-intensive interviews of key professionals. Compensation for experts, interviewers, and analysts.

Purposes: Identifying characteristics of job performers that are causally related to complex outcomes.

Assumptions: Many covert behaviors which are antecedent or causally related to competent professional behaviors are more important performance indicators than are data about storage and retrieval of information or frequency and range of tasks performed.

Advantages: Focuses on non-observable but significant qualities of cognition and attitudes which may be key to exemplary performance.

Disadvantages: Time-consuming. Inappropriate choice of interviewees may lead to unwarranted conclusions. Dependent on expertise of analysts.

Key References: McClelland, D. C. "Testing for Competence rather than Intelligence." American Psychologist. 28: 1-14 (1973).

McClelland, D. C. and C. Daily. Evaluating New Methods of Measuring the Qualities Needed in Superior Foreign Service Officers. Boston: McBer, 1973

Title: Competency Model for Self-Diagnosis of Learning Needs

General Description: A diagnostic process which involves three steps: 1) The development of a model of desired behaviors or required competencies; 2) The assessment of present levels of performance by individuals in each behavior and competency; and 3) The assessment of gaps between the model and present performance. Models can be developed through use of research findings, the judgment of experts, task analysis or group participation in building their own model. Performances to be assessed may include knowledge (through standardized, teacher-made or learner-made tests), skills (through action which is rated in some way), understanding and insights (through tests of critical thinking ability or simulations), and attitudes, interests and values (through role-playing and decision-making exercises). The assessment of revealed performance gaps may include the use of self-rating scales or other means for ranking priorities.

Domain(s) assessed: Knowledge, insight and understanding, skills, values, attitudes, opinions.

Source(s) of information: Variable -- external and internal, primary and secondary sources.

Degree of objectivity: Variable, both objective and subjective possible.

Special feature(s): Adaptable to meeting specific needs of learners. Can include ways to prioritize needs and implement them.

For use with following:

<u>Needs assessment models</u>		
☐ self-fulfillment	☒ individual appraisal	
☐ system discrepancy	☒ diagnostic	
☒ analytic	☐ democratic	
<u>Steps in needs assessment taxonomy</u>		
☒ alpha	☐ beta	☐ gamma
☐ delta	☒ epsilon	☐ zeta
<u>Needs assessment levels</u>		
☐ strategic	☐ programmatic	☒ project

Requirements: Leader skilled in adult learning strategies and able to convey positive climate of mutual trust and responsibility. Comfortable physical environment facilitative of interaction. Sufficient time to permit group participation.

Costs: Variable depending on model-building approach. Some models require use of experts or job analyses which can be costly.

Purposes: To help individuals look objectively at their present level of performance of a relatively small sample of behaviors important to them and determine in what ways they want to improve performance in light of their models of desired behavior.

Assumptions: Learners are able to determine their own educational needs if given appropriate structure and resources for doing so.

Advantages: A sense of ownership and more positive attitude about learning agenda by participants. Designed to meet specific needs of individual learners.

Disadvantages: Tools and procedures currently primitive and inadequate. Can be quite time-consuming. May not necessarily be compatible with organizational goals.

Key References: Knowles, M. S. The Modern Practice of Adult Education: From Pedagogy to Andragogy. New York: Cambridge, 1980.

Title: Critical Incident Technique

General Description: A method of identifying critical job requirements; that is, those specific behaviors which make the difference between doing a job effectively and ineffectively. Steps include: (1) Gather two groups of subject matter experts to describe, usually in writing, specific job incidents and results produced. (2) After editing, have group sort incidents into factors and label factors. (3) Groups then assess incidents for "goodness" or "badness" on seven point scale, filling gaps with additional incidents. (4) Two or more groups meet together and reconcile differences. (5) Resulting information can be used to evaluate practitioners' performance using checklist format.

Domain(s) assessed: Performance, attitudes.

Source(s) of information: Practitioners, supervisors, consumers or others familiar with activity.

Degree of objectivity: Relatively objective, based on direct observations of qualified observers, but with subjective components.

For use with following: Needs assessment models

☐ self-fulfillment	☒ individual appraisal
☒ system discrepancy	☒ diagnostic
☒ analytic	☐ democratic

Steps in needs assessment taxonomy

☐ alpha	☒ beta	☒ gamma
☒ delta	☐ epsilon	☒ zeta

Needs assessment levels

☐ strategic	☒ programmatic	☒ project
------------------------------------	--	---

Requirements: Groups of subject matter experts who can spend one or two days at task. Group facilitator(s) and analyst(s) to run groups and interpret results.

Costs: Time for participants to complete tasks and analysts to develop performance measurement scales from data obtained.

Purposes: To identify elements for rating tasks or jobs, especially those with flexible or undefinable number of "right" ways to behave, thus allowing a high degree of individuality.

Assumptions: A list of critical behaviors provides a sound basis for making inferences in terms of aptitudes, training and other characteristics. Reporting of facts regarding behavior is preferable to collecting ratings, interpretations and opinions.

Advantages: Descriptions developed can be used for various purposes. Useful in communicating expectations, giving feedback to practitioners, and obtaining material useful for learning purposes, among others. Method flexible and modifiable.

Disadvantages: Time consuming. Depends on recall and analytic abilities of participants as well as facilitation and analytic skills of leader. Not effective to capture elements of jobs which are predominately simple, repetitive and procedurally limited.

Key References: Flanagan, J. C. "The Critical Incident Technique." Psychological Bulletin, 51: 327-58 (July, 1954). Reproduced, along with further explanation, in Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainer's Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley, 1982.

Title: Delphi Technique

General Description: A method for structuring group communication process so it effectively allows the group as a whole to deal with complex problems. Two distinct forms exist. In the paper and pencil version (Delphi exercise) a small monitor team designs a questionnaire to be sent to a larger respondent group. When returned, the monitor team summarizes results and develops a new questionnaire for the respondents based on the outcome. Respondents also can re-evaluate original answers based on an examination of group responses. The second form (Delphi conference) uses a computer programmed to compile group results for immediate feedback leading to additional rounds of questions.

Domain(s) assessed: Knowledge, insight and understanding, attitudes, opinions, values.

Source(s) of information: Experts primarily (stake holders and facilitators may be included)

Degree of objectivity: Subjective collective judgments

Special feature(s): Can be designed to meet unique information needs, order priorities, consider implementation strategies.

For use with following: Needs assessment models

☐ self-fulfillment	☐ individual appraisal
☐ system discrepancy	☐ diagnostic
☒ analytic	☒ democratic

Steps in needs assessment taxonomy

☒ alpha	☒ beta	☒ gamma
☒ delta	☒ epsilon	☒ zeta

Needs assessment levels

☒ strategic	☒ programmatic	☐ project
---	--	----------------------------------

Requirements: A panel of experts with applicable knowledge and/or experience. Materials which stimulate quality responses. Rewards to participants (either material or psychic). Monitors who can effectively reflect panelist responses as well as interpret, summarize, and communicate them.

Costs: Development of materials and assembling of panels. Paper and pencil version: monitor, clerical and secretarial time plus mailing costs. Computer version: communications and computer usage.

Purpose: To combine and refine the informed judgments of a group of experts in order to forecast future trends, influence policy formation, and make decisions.

Assumptions: Group interactions by experts via structured communication can create collective human intelligence which can be brought to bear on complex problems.

Advantages: Allows group interaction without expense and time required to assemble group members in one place. Flexible in terms of group size. Provides equal flow of information to and from all. Can minimize psychological effects of group process.

Disadvantages: Demanding and time consuming with built-in delays in paper and pencil version. Subject to distortion if data are poorly summarized, monitors impose views or design questions which include preconceptions. Can generate artificial consensus by ignoring or discouraging dissenters.

Key References: Linstone, H. A. and Turoff, M. The Delphi Method: Techniques and Applications. Reading, Massachusetts: Addison-Wesley, 1975.

Title: Fault Tree Analysis

General Description: Process for figuring out human performance problems. It begins with a clear mission statement for the group, organization or subunit to be analyzed. Next, an undesirable event (UE) postulated (e.g. failure of the mission). The UE is the object of subsequent analysis which proceeds downward in tree-like fashion, determining at each level the most probable and immediate causes of the higher level failure. The process uses logic concepts. Failure events are generated on cards, validated by others in the organization and reproduced. The Fault Tree Diagram can then be developed. Subsequent quantitative analysis requiring the use of Bayesian probabilities and Boolean algebra is an optional next step.

Domain(s) assessed: Performance.

Source(s) of information: Subject matter experts in regard to various components of mission being analyzed.

Degree of objectivity: Objective and subjective.

For use with following: Needs assessment models

☐ self-fulfillment	☐ individual appraisal
☒ system discrepancy	☒ diagnostic
☒ analytic	☐ democratic
<u>Steps in needs assessment taxonomy</u>	
☐ alpha	☒ beta
☒ delta	☐ epsilon
☒ gamma	☒ zeta
<u>Needs assessment levels</u>	
☐ strategic	☒ programmatic
	☐ project

Requirements: Participation of key people in profession or organization to identify failure events and recognize their relationships. Analyst familiar with fault tree analysis.

Costs: Time of several key people within group being assessed. Analyst to interpret data and develop diagram. Use of mathematician and computer programmer if quantitative component used.

Purposes: To predict the most probable ways by which a system or part of it might fail in order to develop strategies to prevent failure from occurring. Can provide accurate identification of problems. Its use said to increase likelihood that goal will be achieved.

Assumptions: Relatively insignificant events at low level of organizational activity can, through a complex chain of events, lead to more general and more serious failures at higher levels.

Advantages: Easier for many people to generate task analysis in terms of failure than success and for several analysts to reach consensus on failure analyses. Process of analysis may be as or even more beneficial than product. Helps determine whether or not training appropriate to solve problem. Process said to usually result in increased commitment to group goals, clarify roles and tasks, and show relationships and interdependencies resulting in improved cooperation and coordination.

Disadvantages: Usefulness highly dependent on quality of data provided. If quantitative analysis required, high level math skills required and computer expertise desirable.

Key References: Spitzer, D. "Fault Tree Analysis for Trainers." Training, The Magazine of Human Resources Development. February, 1980.

Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainers Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley (1982).

Title: Focus Delphi Procedure

General Description: A variation of the Delphi technique (see separate heading) which does not depend on a panel of experts but instead uses representatives of various groups who may be involved in determining a consensus from which policies can be generated. Usually involves several rounds of obtaining responses, sharing group data, and gathering additional responses. Like the Delphi, it sends items by mail for group members to react to. It is most often used to generate and rank goals in light of anticipated future conditions.

Domain(s) assessed: Knowledge, insight and understanding, attitudes, opinions, values.

Source(s) of information: Various groups with an interest in issues to be assessed.

Degree of objectivity: Subjective collective judgment.

Special feature(s): Can be designed to meet unique information needs, order priorities, consider implementation strategies.

For use with following: Needs assessment models

☐ self-fulfillment	☐ individual appraisal
☐ system discrepancy	☐ diagnostic
☒ analytic	☒ democratic

Steps in needs assessment taxonomy

☒ alpha	☒ beta	☒ gamma
☒ delta	☒ epsilon	☒ zeta

Needs assessment levels

☒ strategic	☒ programmatic	☐ project
---	--	----------------------------------

Requirements: Participants representative of groups concerned with issue. Materials which stimulate quality responses. Incentives to encourage participation. Planners to collate, interpret, summarize and communicate about responses.

Costs: Development of materials. Participants, planners, clerical and secretarial time. Postage.

Purposes: To combine and refine the judgments of various groups concerned with issues in order to forecast future trends, influence policy formation, and make decisions.

Assumptions: Interaction by various concerned groups using structured communication can create collective intelligence which can be brought to bear on complex problems. Many publics, not just experts, have important input to provide.

Advantages: Allows group interaction without expense and time required to assemble group members in one place. Flexible group size. Provides equal flow of information to and from all. Minimizes group influence on individual participants.

Disadvantages: Demanding and time-consuming with built-in delays. Subject to distortion if data inaccurately summarized or planners impose views or preconceptions.

Key References: Sandow, S. Educational Policy Formulation: Planning with the Focus Delphi and the Cross-Purpose Matrix. Washington, D. C.: U. S. Office of Education Policy Research Center, February, 1972.

Kaufman, R. and English, F. Needs Assessment: Concept and Application. Englewood N. J.: Education Technology Publications, 1979.

Linstone, H. A. and Turoff, M. The Delphi Method: Techniques and Applications. Reading, Massachusetts: Addison-Wesley, 1975.

Title: Focus Group Interviews

General Description: A qualitative tool for collecting information in which a number of selected respondents simultaneously discuss given topics under the guidance of a moderator. Usually session lasts one to one and a half hours and can cover three to five research questions. Approach can be exploratory (search for new ideas), clinical (uncover underlying causes of behaviors), phenomenological (seek everyday experience and knowledge). Format can be directive or nondirective but should attempt to involve all group members. Audio (or video) tapes of session are transcribed. Individual statements are then sorted, categorized, summarized and analyzed for a report. Results described in terms of impressions and hypotheses.

Domain(s) assessed: Attitudes, opinions, respondent characteristics, work setting.

Source(s) of information: Primary -- external or internal to profession.

Degree of objectivity: Subjective

Special feature(s): Can be designed to meet unique information needs of assessor.

For use with following:

Needs assessment models

☒ self-fulfillment	☒ individual appraisal
☒ system discrepancy	☒ diagnostic
☒ analytic	☒ democratic

Steps in needs assessment taxonomy

☒ alpha	☒ beta	☒ gamma
☐ delta	☒ epsilon	☒ zeta

Needs assessment levels

☒ strategic	☒ programmatic	☒ project
---	--	---

Requirements: Careful planning and preparation, including wording of questions to be asked. Moderator who is experienced, perceptive and skilled in group dynamics. Audiotape recorder and tape, high quality microphone desirable, video taping equipment optional. Access to appropriate sample population. Quiet, comfortable and private environment.

Costs: Purchase or rental of equipment if not available. Time (and sometimes pay) for participants in group and moderator. Time-consuming transcription and data analysis required.

Purposes: To find out what target group members think and feel about specific subjects. To generate hypotheses, obtain information to be used in structuring questionnaires, develop new ideas and direction for further research or for creative concepts.

Assumptions: What respondents say is accurate representation of what they think and feel.

Advantages: Fast, flexible and relatively inexpensive. Provides understandable views in realistic language. Format provides for respondents to stimulate ideas in one another.

Disadvantages: Uses limited data sources, not generalizable (unless several comparable groups concur). Cannot quantify results. Prone to misinterpretation through selective listening.

Key References: Higginbotham, J. B. and Cox, K. K. (Eds.) Focus Group Interviews: A Reader. Chicago: American Marketing Association, 1979.

Troeger, M. C. The Use of the Focus Group in an Educational Setting. Paper presented at American Adult and Continuing Education Conference, Hollywood, Florida, October, 1986.

Zemke, R. and Kramlinger, T. Figuring Things Out: A Trainers Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley, 1982.

Title: Performance Audit

General Description: A method of measuring performance at any of several levels from that of a large organization to that of specific individuals or group. The steps involved include: (1) identifying accomplishments, (2) identifying requirements, (3) identifying exemplary performance; (4) measuring exemplary performance; (5) measuring typical performance, (6) computing potential for improving performance (PIP) and (7) translating the PIP's into their economic value.

Domain(s) assessed: Performance.

Source(s) of information: Practitioner.

Degree of objectivity: Relatively objective.

For use with following:

<u>Needs assessment models</u>		
☐ self-fulfillment	☒ individual appraisal	
☐ system discrepancy	☒ diagnostic	
☒ analytic	☐ democratic	
<u>Steps in needs assessment taxonomy</u>		
☐ alpha	☐ beta	☐ gamma
☒ delta	☐ epsilon	☒ zeta
<u>Needs assessment levels</u>		
☐ strategic	☒ programmatic	☒ project

Requirements: Analyst trained in specific method of human performance analysis.

Opportunity/permission to observe individuals at work and interact with them as needed.

Costs: Time and expertise of analyst.

Purposes: To describe current performance in order to determine if there is potential for improved performance.

Assumptions: It is more useful to measure performance accomplishment than behaviors. Any kind of performance can be measured and quantified. The measures obtained should have an economic correlation which will serve as a guide to later planning.

Advantages: Based on direct observation and performance outcomes.

Disadvantages: Requires expert in human performance engineering. Disregards affective and other non-observable data.

Key References: Gilbert, T. F. Human Competence: Engineering Worthy Performance. New York: McGraw-Hill Book Company, 1978.

Title: Projective Self-Assessment Techniques

General Description: There are a variety of methods for indirectly obtaining clues as to individual needs. The projective questionnaire asks respondents to imagine themselves in a presented situation and write answers to questions posed (e.g. If you think about what you should be doing ten years from now, what insecurities about yourself do you feel?) The sentence-completion questionnaire asks respondents to complete sentences about similar topics (e.g. When I think about my future as a (professional) I...) Variations include a card-sort in which professionals are asked to sort cards containing statements about work-related problem situations into one of three piles: those they feel secure, moderately secure and insecure about performing. A picture sort variation illustrating responsibilities has also been reported to be effective.

Domain(s) assessed: Attitudes, opinions, respondent characteristics

Source(s) of information: Primary -- potential learners

Degree of objectivity: Subjective

Special feature(s): None

For use with following:

<u>Needs assessment models</u>		
☐ self-fulfillment	☒ individual appraisal	
☐ system discrepancy	☒ diagnostic	
☒ analytic	☐ democratic	
<u>Steps in needs assessment taxonomy</u>		
☒ alpha	☐ beta	☐ gamma
☐ delta	☐ epsilon	☐ zeta
<u>Needs assessment levels</u>		
☐ strategic	☒ programmatic	☒ project

Requirements: Set of statements (or pictures) concerning issues of interest.

Costs: Minimal beyond time to develop materials.

Purposes: To obtain deeper and ostensibly more reliable clues as to individuals' real needs.

Assumptions: Responses to projective instruments provide accurate data about individual's needs.

Advantages: Fast, easy, flexible. Taps underlying feelings of respondents. Allows confidentiality. Can provide casestudy and critical incident material for later use as learning content.

Disadvantages: May be difficult to translate into specific educational needs.
Respondents may feel uncomfortable, threatened by focus on underlying feelings.

Key References: Knowles, M. The Modern Practice of Adult Education: From Pedagogy to Androgogy. New York: Cambridge, 1980.

Title: Quality Assurance Review (Inspection of Practitioners' Records and Reports)

General Description: One or more peers, administrators or consultants from outside an agency review representative records (usually chosen at random with or without using stratified sampling procedure) to determine if appropriate practice procedures have been followed. This has most often been used in health care professions.

Domain(s) assessed: Performance

Source(s) of information: Primary -- practitioners' output

Degree of objectivity: Relatively objective

Special features(s): May indicate specific needs of individual practitioners

For use with following:

<u>Needs assessment models</u>		
☐ self-fulfillment	☐ individual appraisal	
☒ system discrepancy	☒ diagnostic	
☐ analytic	☐ democratic	
<u>Steps in needs assessment taxonomy</u>		
☐ alpha	☒ beta	☒ gamma
☒ delta	☒ epsilon	☐ zeta
<u>Needs assessment levels</u>		
☐ strategic	☒ programmatic	☐ project

Requirements: Availability of expert evaluators. Comprehensive written records of professionals' procedures. Standard or agreed upon criteria against which to evaluate.

Costs: Clerical time to pull and organize records. Experts' time (and remuneration?). Administrative time to summarize, review, disseminate findings.

Purposes: Determine whether quality performance is occurring. Provide clues to unique problems and/or patterns of practice.

Assumptions: Records provide adequate and accurate representation of what actually has happened.

Advantages: Relatively direct and objective measures to assess discrepancies.

Disadvantages: Records sometimes hard to retrieve and analyze. Records may not contain accurate or complete documentation of actual performance. Time-consuming.

Key Reference: Sanazaro, P. J. "Medical Audit, Continuing Medical Education, and Quality Assurance." Western Journal of Medicine, 125(3) 1979: 241-252.

Title: Survey: Multiple-Matrix Sampling Technique

General Description: A sampling procedure for obtaining responses about a large pool of items while only requiring individual respondents to be given a small number of these items. The statistical model used permits the investigator to interpret test score means and other variables in ways which otherwise would have been obtained by only testing all individuals on all items. The steps involved are a) subdividing a large pool of items into subtests; b) administering each subtest to a group of examinees selected from the population; and c) estimating parameters of entire item pool from subtest results.

Domain(s) assessed: Variable, e.g. any domains for which multiple choice, forced choice or Likert items are appropriate.

Source(s) of information: Consumers, experts, practitioners, supervisors.

Degree of objectivity: Variable, depending on domain assessed.

Special feature(s): Flexible in meeting unique information needs including ways to order priorities.

For use with following:

<u>Needs assessment models</u>		
☒ self-fulfillment	☐ individual appraisal	
☒ system discrepancy	☒ diagnostic	
☒ analytic	☐ democratic	
<u>Steps in needs assessment taxonomy</u>		
☒ alpha	☒ beta	☒ gamma
☐ delta	☒ epsilon	☐ zeta
<u>Needs assessment levels</u>		
☒ strategic	☒ programmatic	☒ project

Requirements: Access to large number of items to be evaluated. Access to adequate number of respondents who can be formed into homogeneous groups. Available expertise in experimental design, statistics and computer use.

Costs: Time to develop instrument, administration, computer use.

Purposes: To gather data about a large number of items in a way which reduces the time commitment of each participant and increases the number and variety of total items.

Assumptions: This method is preferred procedure for measuring group differences as opposed to individual differences and is superior to the matched item model for this purpose.

Advantages: Reduces standard error of estimate. Allows feasible way of dealing with large number of items. Reduces testing time per individual and corresponding expenses. Reduces concern of those in charge that results will be used against them.

Disadvantages: Logistics of giving different subtests from item pool to different examinees can be complex. Requires use of computer to analyze. Not easy to predict overall score of given individual from subtest score.

Key References: Shoemaker, D. M. Principles and Procedures of Multiple Matrix Sampling. Cambridge, Massachusetts: Ballinger Publishing, 1973.

Lindsay, C., J. L. Morrison and E. J. Kelly. "Professional Obsolescence: Implications for Continuing Professional Education." Adult Education, 25(1), 1974: 3-22.

PROCEDURES FOR ORDERING PRIORITIES

Title: Budget Allocation Procedure

General Description: A need (or goal) rating procedure in which each respondent allocates a number of points (dollars) among a set of statements. Usually twice the number of points as there are goals is provided. Using either paper and pencil or stacks of goal cards and tokens, each respondent apportions points for each goal on a five-point scale until all points are used up.

Domain(s) assessed: Opinions, values.

Source(s) of information: Decision makers.

Degree of objectivity: Subjective.

Requirements: List of needs statements or stack of cards, each containing a needs statement, plus tokens representing points or dollars for each respondent.

Costs: Minimal. Cost of materials.

Purposes: To force decisions to be made on the relative importance among needs so that not all goals will be rated as equally important.

Assumptions: A decision-making exercise which includes limited resource allocations provided a more realistic situation than does rankordering alone.

Advantages: Well-suited to individuals and to small groups along with a discussion on priorities.

Disadvantages: May be difficult to do if number of items is large. Requires preparing materials.

Key References: Witkin, B. R. "Needs Assessment Kits, Models, and Tools." Educational Technology. (November, 1977).

Title: Card Sort Goal Rating Procedure

General Description: A procedure for ordering priorities in which each respondent receives a stack of cards, each of which contains a needs statement. The cards are to be sorted by placing each in one of several (three to five) categories indicating degrees of importance. Points are assigned to each category. Group totals and means for each need are computed. Variation: Sorting can be forced to yield equal (or given) number in each category.

Domain(s) assessed: Opinions.

Source(s) of information: Decision makers.

Degree of objectivity: Subjective.

Requirements: Stack of cards with one need statement per card, for each respondent participating at a given time.

Costs: Minimal. Cost of materials.

Purposes: To develop a priority order of needs to be addressed.

Assumptions: The opinions of interested groups about the relative importance of a list of needs should be considered when setting priorities.

Advantages: Easy to use individually or in small groups. Allows for interaction if desired.

Disadvantages: May be too mechanical. Difficult to do if number of items to sort is large. Requires making up cards.

Key References: Witkin, B. R. "Needs Assessment Kits, Models and Tools." Educational Technology. (November, 1977).

Title: Decision Model (Combined analyses in qualitative statements.)

General Description: A procedure for determining which among a number of identified needs are most critical. Combines ranking of needs on Likert-type scale or other rating procedure with consideration of additional factors such as feasibility, cost, efficiency, validity of sampling strategies used and so.

Domain(s) assessed: Opinions, values.

Source(s) of information: Decisionmakers.

Degree of objectivity: Subjective and sometimes objective as well.

Requirements: Description of needs to be considered. Data concerning resources available, constraints and other factors to be considered.

Costs: Minimal beyond time for participants to consider options. Some preparation time may be required to gather background information.

Purposes: To determine which needs to act upon using a number of criteria.

Assumptions: A combination of factors should be taken into account in putting needs in priority order.

Advantages: Takes many factors into account. Puts emphasis on priorities for action. More specific than simple rating procedures. Can integrate perceptual data, test scores and input data.

Disadvantages: Takes more time to do than simple rating. May overemphasize utility at expense of innovativeness. Few guidelines for decision making. More difficult to communicate decision.

Key References: McCaslin, N. L. and J. Lave. Needs Assessment and Career Education: An Approach for States. Columbus, Ohio: The Ohio State Center for Vocational Education, 1976.

Title: Demand Assessment Approach

General Description: A method for determining priorities among needs based on demand (willingness to pay) for meeting those needs. Decisionmakers are presented with strategies for meeting determined needs along with the costs of doing so. For each proposed solution they are asked if they "could afford", "could just barely afford", or "could not afford" to meet needs. Costs presented are adjusted upward or downward in 15 percent increments until the "could just barely afford" category is determined. Data obtained is then compared to actual costs of meeting needs to determine if implementation is feasible. A "do not want" category can be included to account for determined needs which respondents are unwilling to meet at any cost.

Domain(s) assessed: Opinions, values

Source(s) of information: Decisionmakers with potential for implementing or participating in continuing education.

Degree of objectivity: Variable. Mix of subjective (opinions) and objective (budget).

Requirements: List of needs statements reflecting proposed actions, access to decisionmakers involved in sponsoring or taking continuing education.

Costs: Telephone or other communication costs. Time to develop, administer, analyze data.

Purposes: To find the critical cost at which respondents can "just barely afford" a service in order to decide if demand for service is sufficient to justify cost.

Assumptions: Limited resources generally preclude the achievement of all expressed needs. By distinguishing demand from need, can implement those needs which can be met most easily and economically.

Advantages: Provides information which may indicate the likelihood that product will actually be used by intended audiences.

Disadvantages: Focuses on cost as primary factor in decisionmaking without considering other motivating factors.

Key References: Conner, R. F., M. Jacobi, D. Altman and C. B. Aslanian. "Measuring Need and Demands in Evaluation Research." Evaluation Review, 9(6) (December, 1985).

Title: Magnitude Estimation Scaling

General Description: A need (or goal) rating procedure in which a referent item is assigned an arbitrary value (e.g. 50) and each respondent compares all other listed items with the referent and assigns values to each in comparison with the referent (e.g. Goal 1 might be rated 100, goal 2, 25 and so on). The geometric means of all ratings multiplied by a constant gives an evaluation score. The standard deviation of the logarithm of response gives a level of agreement score.

Domain(s) assessed: Opinions, values.

Source(s) of information: Decision makers.

Degree of objectivity: Subjective.

Requirements: List of all items to be ranked.

Costs: Minimal. Time for participants to learn procedure, and rank items. Computer use.

Purposes: Provides ratio scale expressions of the relative importance of a list of needs.

Assumptions: A method which shows the relative distance between goals, not just the rank order, is superior to a straight rankordering.

Advantages: Greater specificity. Gives better data for analyzing reasons for discrepancies between respondent groups. Easy to administer.

Disadvantages: Scoring and data analysis more difficult than other methods -- requires computer. Technique not widely known. Takes longer to analyze and graph data than simple difference techniques.

Key References: Dell, D. L. and T. Meeland. Needs Assessment Scaling Procedures. Position paper. Menlo Park, California: Stanford Research Institute, May, 1973.

Witkin, B. R. "Needs Assessment Kits, Models and Tools." Educational Technology. (November, 1977).

Title: Priority Matrix or Pair-Weighting Procedures

General Description: This is a decision-making process to help choose among a limited number of possible options. The steps include: (1) List all options; (2) set options against each other in a matrix; (3) weigh items against each other, one at a time; (4) when all items have been compared one by one and the matrix is complete, count the number of times each item was chosen; (5) the items entered most often in the matrix are those which should be given highest priority.

Domain(s) assessed: Opinions.

Source(s) of information: Decision makers.

Degree of objectivity: Subjective.

Requirements: List of all options in matrix form (see matrix form which follows).

Costs: Minimal. Time for participants to rank items and leader to tabulate responses.

Purposes: To develop a priority list or ranking of needs to be addressed.

Assumptions: Forced choice technique is more sensitive in determining respondents opinion than is simple rank ordering.

Advantages: Straight forward but more exact than simple ranking procedure. Easy to get group ratings.

Disadvantages: Cumbersome if more than 10-12 items to rank. Forced choices sometimes difficult.

Key References: Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainer's Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley Publishing Company, 1982.

Simple Consensus or Priority Matrix.

I. Goal of Task:	A	B	C	D	E	F	G	H	I	J
A.	X									
B.	X	X								
C.	X	X	X							
D.	X	X	X	X						
E.	X	X	X	X	X					
F.	X	X	X	X	X	X				
G.	X	X	X	X	X	X	X			
H.	X	X	X	X	X	X	X	X		
I.	X	X	X	X	X	X	X	X	X	
J.	X	X	X	X	X	X	X	X	X	X

Using the Simple Consensus Grid or Priority Matrix:

1. List each factor to be weighed (features, skills, skill clusters).
2. Set factors against one another in the grid.
3. Weigh factors against each other, one at a time.
4. When completed, count the number of times each factor was chosen.
5. Factors with most entries receive most emphasis in decision being made.

Title: Ranking or Rating Procedures

General Description: Procedures for ranking needs on dimensions such as importance or utility. Most commonly respondents rank each goal separately using a Likert-type scale. A more sophisticated approach involves discrepancy ratings. It requires respondents to rank needs descriptions in terms of both current and desired levels of achievement and uses the discrepancy between the two rankings (needs index) as a basis for choosing which needs to address. Critical needs are generally those ranked as high in importance and low in attainment. Responses of groups representing two or more constituencies (e.g. practitioners and supervisors) may be compared as well.

Domain(s) assessed: Opinions, values.

Source(s) of information: Various -- experts, practitioners, supervisors, public.

Degree of objectivity: Subjective.

Requirements: Description of needs to be ranked.

Costs: Minimal.

Purposes: To provide perceptions or opinions on the relative importance of needs or goals.

Assumptions: Respondents opinions provide useful data in determining which needs to address.

Advantages: Easy to do. Shortens time needed to complete.

Disadvantages: Simplistic. May not differentiate among needs in terms of priorities if all are ranked similarly. Doesn't take feasibility or utility of implementation into account.

Key References: Rookey, T. J. Needs Assessment Model: East Stroudsburg. East Stroudsburg, PA: Educational Development Center, (1975).

BIBLIOGRAPHY

- Argyris C. and D. A. Schon. Theory in Practice: Increasing Professional Effectiveness. San Francisco: Jossey-Bass, 1974.
- Brackhaus, B. "Needs Assessment in Adult Education: Its Problems and Prospects." Adult Education Quarterly, 34(4) (1982): 233-239.
- Campbell, M. D. Before you Plan Educational Programs: Find Out What's Needed. Urbana-Champaign; Office of Continuing Education and Public Service, University of Illinois, 1980.
- Campbell, D. T. and D. W. Fiske. "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix." Psychological Bulletin, 56 (1959): 81-105.
- Conner, R. F., M. Jacobi, D. A. Altman, and C. B. Aslanian. "Measuring Need and Demands in Evaluation Research: Results of a National Survey of College and University Administrators About Desired Evaluation Services." Evaluation Review, 9(6) (December 1985).
- Cross, K. P. "The State of the Art in Needs Assessments." In L. G. Johnson (Ed.) Assessing the Needs of Adult Learners: Methods and Models. Marketing Studies Series, Volume I Advisory Committee on Lifelong Learning, Ohio Board of Regents, (August 1980).
- Evans, N. J. "Needs Assessment Methodology: A Comparison of Results." Journal of College Student Personnel, 26(2) (1985): 107-114.
- Fidler, J. and D. R. Loughran. "A Systems Approach." In F. C. Pennington (Ed.) New Directions for Continuing Education: Assessing Educational Needs of Adults. San Francisco: Jossey-Bass, Inc., 1980.
- George, J. L. and S. S. Dubin. Continuing Education Needs of Natural Resource Managers and Scientists: A Comparative Study of Self-Perceived Updating Requirements of Professional Personnel in Fisheries, Forestry, Range, Recreation and Parks, Soil and Water and Wildlife. University Park, Pennsylvania: Department of Planning Studies in Continuing Education, 1971.
- Gilbert, T. F. Human Competence: Engineering Worthy Performance. New York: McGraw-Hill, 1978.
- Goldsmith, J. and P. S. Pottinger. "Future Directions." In P. S. Pottinger and J. Goldsmith (Eds.). New Directions for Experiential Learning: Defining and Measuring Competence. San Francisco: Jossey-Bass, Inc., 1979.
- Higginbotham, J. B. and K. K. Cox. Focus Group Interviews: A Reader. Chicago: American Marketing Association, 1979.
- Houle, C. O. "Possible Futures." In M. R. Stein (Ed.) Conflict in Continuing Professional Education. Belmont, California: Wadsworth, 1983.

- Johnson, L. G. (Ed.). Assessing the Needs of Adult Learners: Methods and Models. Marketing Studies Series, Volume I Advisory Committee on Lifelong Learning, Ohio Board of Regents, (August 1980).
- Kaufman, R. "Obtaining Functional Results: Relating Needs Assessment, Needs Analysis and Objectives." Educational Technology, 26(1) (January 1986): 24-27.
- Kaufman, R. and F. English. Needs Assessment: Concept and Application. Englewood Cliffs, New Jersey: Educational Technology Publications, 1979.
- Knowles, M. S. The Modern Practice of Adult Education: From Pedagogy to Andragogy. New York: Cambridge, 1980.
- Levine, H. G., D. L. Cordes, D. E. Moore, Jr., F. C. Pennington. "Identifying and Assessing Needs to Relate Continuing Education to Patient Care." In J. S. Green, S. J. Grosswald, E. Suter, and D. B. Walthall, III, (Eds.). Continuing Education for the Health Professions. San Francisco: Jossey-Bass, 1984: 152-173.
- Lindsey, C. and M. B. Crowe. "Relationships Between Clinical Psychology Practitioners' Expressed Needs and Demands for Continuing Professional Education: Some Conceptual and Methodological Issues." Lifelong Learning Research Conference Proceedings, February, 1984.
- Lindsey, C. A., J. L. Morrison, and E. J. Kelley. "Professional Obsolescence: Implications for Continuing Professional Education." Adult Education, 25(1) (1974): 3-22.
- Linstone, H. A. and M. Turoff (Eds.). The Delphi Method: Techniques and Applications. Reading, Massachusetts: Addison-Wesley, 1975.
- Long, H. B. Adult Learning: Research and Practice. New York: Cambridge, 1983.
- McCaslin, N. L. and J. Lave. Needs Assessment and Career Education: An Approach for States. Columbus, Ohio: Center for Vocational Education, The Ohio State University, 1976.
- Monette, M. L. "Need Assessment: A Critique of Philosophical Assumptions." Adult Education, 21(2) (1979): 83-95.
- Needs Assessment Procedure Manual. Austin, Texas: Educational Systems Associate, 1974.
- Norcini, J. J., J. A. Meskaukas, L. O. Langdon, and G. D. Webster. "An Evaluation of a Computer Simulation in the Assessment of Physician Competence." Evaluation and the Health Professions, 9(3) (September 1986): 286-304.
- Olson, P. A. and L. Freeman. "Defining Competence in Teacher Licensing Usage. In P. S. Pottinger and J. Goldsmith (Eds.). New Directions for Experiential Learning: Defining and Measuring Competence. San Francisco: Jossey-Bass, Inc., 1979.

- Pennington, F. and J. Green. "Comparative Analysis of Program Development Processes in Six Professions." Adult Education, 27(1) (1976): 13-23.
- Pottinger, P. S. "Competence Assessment: Comments on Current Practices." In P. S. Pottinger and J. Goldsmith (Eds.). New Directions for Experiential Learning: Defining and Measuring Competence. San Francisco: Jossey-Bass, Inc., 1979.
- Rookey, T. J. Needs Assessment Model: East Stroudsburg. East Stroudsburg, Pennsylvania: Educational Development Center, 1975.
- Sanazaro, P. J. "Medical Audit, Continuing Medical Education, and Quality Assurance." Western Journal of Medicine, 125(3) (1979): 241-252.
- Sadow, S. Educational Policy Formulation: Planning with the Focus Delphi and the Cross Purpose Matrix. Washington, D. C. U. S. Office of Education Policy Research Center, February, 1972.
- Scofield, M. E. "Assessment Procedures." [memo to Clinical Profession Team Members] (June, 1982).
- Scriven, M. and J. Roth. "Needs Assessment: Concepts and Practices." In S. Scarvia, B. Anderson and C. D. Coles (Eds.). New Directions for Program Evaluation: Exploring Purposes and Dimensions. San Francisco: Jossey-Bass, Inc. 1978.
- Sheridan, E. and D. W. Shannon. "A Comprehensive Model of Assessing the Training Needs of Local Government Staff." In P. P. LeBreton et al. (Eds.). The Evaluation of Continuing Education for Professionals: A Systems Review. Seattle: University of Washington, 1979.
- Shimberg, B. "What is Competence? How Can it be Assessed?" In M. E. Stern (Ed.). Power and Conflict in Continuing Professional Education. Belmont, California: Wadsworth Publishing Company, 1983.
- Shoemaker, D. M. Principles and Procedures of Multiple Matrix Sampling. Cambridge, Massachusetts: Ballinger, 1973.
- Smutz, W., S. Kalman, C. Lindsay, R. Pietrusko, and J. Seaman. The Practice Audit Model: A Process for Continuing Professional Education Needs Assessment and Program Development. University Park, Pennsylvania: Continuing Professional Education Development Program, 1981.
- Swierczek, F. W. and L. Carmichael. "Assessing Training Needs: A Skills Approach." Public Personnel Management, 14(3) (1985): 259-273.
- Tennant, M. "The Concept of 'Need' in Adult Education." Australian Journal of Adult Education, 25(2) (1985).
- Tests simulating real-life situations reflect the evolving structure of intelligence. ETS Developments, 32(1) (Summer 1986): 9. Princeton, New Jersey: Educational Testing Service.

- Troege, M. C. "The Use of the Focus Groups in an Educational Setting." Paper presented at American and Continuing Education Conference, Hollywood, Florida, October, 1986.
- Witkin, B. R. "Communication Strategies in Public Policy Decision Making: An Analysis of Processes in Major Needs Assessment Models from a Systems Point of View." Paper prepared for International Communication Association, Chicago, Illinois, April, 1975.
- Witkin, B. R. "Needs Assessment Models: A Critical Analysis." Paper prepared for American Educational Research Association Annual Meeting, San Francisco, California, April, 1976.
- Witkin, B. R. "Needs Assessment Kits, Models and Tools." Educational Technology, (November 1977).
- Zemke, R. and T. Kramlinger. Figuring Things Out: A Trainer's Guide to Needs and Task Analysis. Reading, Massachusetts: Addison-Wesley, 1982.

THE OFFICE OF CONTINUING PROFESSIONAL EDUCATION

WORKING PAPERS AVAILABLE

Continuing Professional Education Delivery Systems, April 1987 (\$5.00)

Developing a Needs Assessment Plan in Continuing Professional Education, April 1987 (\$7.00)

The Medical Audit: Implications for Continuing Medical Education, August 1981 (\$5.00)

A Model and Process for University/Professional Association Collaboration, June 1981 (\$5.00)

PROJECT REPORTS AVAILABLE

Professional and Occupational Practice Requirements: A Continuing Professional Education Series (3rd Edition), December 1984 (\$15.00)

Establishing Foundations for University/Professional Association Collaboration, April 1984 (\$5.00)

Mainstreaming Continuing Professional Education: A Conceptual Approach and An Empirical Study, April 1984 (\$10.00)

The Practice Audit Model: A Process for Continuing Professional Education Needs Assessment and Program Development, March 1982 (\$5.00)

Project Reports and Working Papers may be ordered from Commonwealth Educational System Stores, 9 J. Orvis Keller Building, The Pennsylvania State University, University Park, PA 16802. Prices include postage and handling. Checks should be made payable to The Pennsylvania State University.